THE IRON AGE

Published every Thursday Morning by David Williams Co., 14-16 Park Place, New York.

Vol. 82: No. 12. *New York, Thursday, September 17, 1908.* $5 00 a Year, including Postage. Single Copies, 15 Cents.

Reading Matter Contents.....page 820
Alphabetical Index to Advertisers " 196
Classified List of Advertisers " 186
Advertising and Subscription Rates " 827

REED F. BLAIR & CO.

FRICK BUILDING, PITTTBURG, PA.
STANDARD CONNELSVILLE
COKE
FOUNDRY FURNACE CRUSHED

The Original and only Genuine
STILLSON TRADE MARK REGISTERED U.S.PAT.OFFICE
"STILLSON WRENCH"
is manufactured by
WALWORTH MFG. CO., Boston, U. S. A.
And bears their registered Trade-Mark

BRISTOL'S PATENT STEEL BELT LACING

READY TO APPLY FINISHED JOINT
The Bristol Company, Waterbury, Ct.

SAMSON SPOT SASH CORD

TURNBUCKLES

Cleveland City Forge and Iron Co., - Cleveland, O.

TURNBUCKLES.

MERRILL BROS.
Maspeth,
New York, N. Y.

FOUNDRY IRON

Pilling & Crane
Real Estate Trust Bldg., Phila.
Machesney Bldg., Pittsburg
Empire Bldg., New York

LUFKIN TAPES and RULES
MADE IN AMERICA and THE BEST IN THE WORLD
THE LUFKIN RULE CO., Saginaw, Mich., U.S.A.
New York, London, Eng. Windsor, Can.

Time is Money—
USE OUR
"Apollo Best Bloom" Galvanized Sheets
and save money by saving time.
AMERICAN SHEET AND TIN PLATE COMPANY
Frick Building, Pittsburgh, Pa.
See our Ad. on page 17

THIS CUT SHOWS IN REDUCED SIZE THE
1908 U.M.C.-REMINGTON WINDOW TRIM
It is lithographed in six printings and is full of life and color. Can be adapted to any size of window 6 ft. or over in width Sent free to any dealer who guarantees to use it for a reasonable length of time.

Write for this powerful business getter.

Address M. HARTLEY COMPANY Adv. Dept.
313 Broadway, New York City

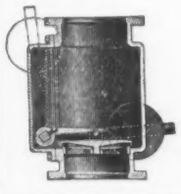
WATER TUBE BOILERS The Babcock & Wilcox Co., 85 Liberty Street, New York
See page 54

IN THE INTEREST OF THE HORSE

and of ALL HORSE OWNERS AND HORSESHOERS "The Capewell" nail should be used in shoeing horses of all classes.

No danger of nails splitting! No danger of nails breaking at a critical moment! No danger of injuring a horse's foot or hoof on account of dull points or weak blades when "Capewell" nails are used.

Made by
THE CAPEWELL HORSE NAIL COMPANY
HARTFORD, CONN., U. S. A.



Excelsior Straightway Back-Pressure Valve
has a full, unobstructed passage through it nearly in line with the pipe, and therefore offers no resistance to the free flow of steam. Thoroughly reliable when used as a back pressure valve, it is also adapted for use as a relief or free exhaust valve for condensers. By changing position of outside lever, it will work equally well in a vertical or horizontal position.
JENKINS BROS., New York, Boston, Philadelphia, Chicago, London.

"Swedoh" Cold Rolled Steel is unexcelled for Drawing and Stamping
THE AMERICAN TUBE & STAMPING COMPANY
(Water and Rail Delivery) BRIDGEPORT, CONN.
SEE PAGE 27

MAGNOLIA ANTI FRICTION METAL
The Standard Babbitt of the World
We manufacture everything in the Babbitt Line.
MAGNOLIA METAL CO.

New York: 115 Bank St. Chicago: Fisher Building. Montreal: 31 St. Nicholas St.

FINE STEEL SHEETS

Follansbee Blue

AND

Follansbee Polished

ELECTRICAL SHEETS
AND
DEEP DRAWING QUALITY
IN
ANY REQUIRED FINISH

BRIGHT TIN
ROOFING TIN
all made from
HAMMERED
OPEN HEARTH
BLOOMS
BY

FOLLANSBEE BROTHERS COMPANY
PITTSBURGH

Only American users of the old successful, Welsh Hammered Open Hearth process.

BRASS { SHEET ROD WIRE

COPPER { SHEET ROD WIRE

GERMAN SILVER { SHEET ROD WIRE

LOW BRASS, SHEET BRONZE, SEAMLESS BRASS AND COPPER TUBING, BRAZED BRASS AND BRONZE TUBING : : : : :

Waterbury Brass Co.
WATERBURY, CONN.
99 John St., New York. Providence, R. I.

Bridgeport Deoxidized Bronze & Metal Co.
BRIDGEPORT, CONN.
Phosphor and Deoxidized Bronze
Composition, Yellow Brass and Aluminum Castings, large and small

The Plume & Atwood Mfg. Co.
Manufacturers of
Sheet and Roll Brass
and
WIRE
Printers' Brass, Jewelers' Metal, German Silver and Gilding Metal, Copper Rivets and Burrs
Pins, Brass Butt Hinges, Jack Chain, Kerosene Burners, Lamps, Lamp Trimmings, &c.
279 Broadway, NEW YORK
Room 508 Hayworth Building, East Madison St., CHICAGO, ILL.
Rolling Mill THOMASTON, CONN. Factories WATERBURY, CONN.

SCOVILL MFG. CO.
Manufacturers of
BRASS, GERMAN SILVER,
Sheets, Rolls, Wire, and Rods.
Brass Shells, Cups, Hinges, Buttons, Lamp Goods.
Special Brass Goods to Order.
Factories:
WATERBURY, CONN.
Depots:
NEW YORK CHICAGO BOSTON

Henry Souther Engineering Co.
HARTFORD, CONN.
Consulting Chemists, Metallurgists and Analysts.
Complete Physical Testing Laboratory.
Expert Testimony in Court and Patent Cases.

Matthiessen & Hegeler Zinc Co.
La Salle, Illinois.
SMELTERS OF SPELTER
AND MANUFACTURERS
SHEET ZINC AND SULPHURIC ACID
Special Sizes of Zinc cut to order. Rolled Battery Plates.
Selected Plates for Etchers and Lithographers' use.
Selected Sheets for Paper and Card Makers' use.
Stove and Washboard Blanks.
ZINCS FOR LECLANCHE BATTERY.

Arthur T. Rutter & Co.
256 Broadway,
NEW YORK.
Small tubing in Brass, Copper, Steel, Aluminum, German Silver, &c. Sheet Brass, Copper and German Silver. Copper, Brass and German Silver Wire. Brazed and Seamless Brass and Copper Tube. Copper and Brass Rod.

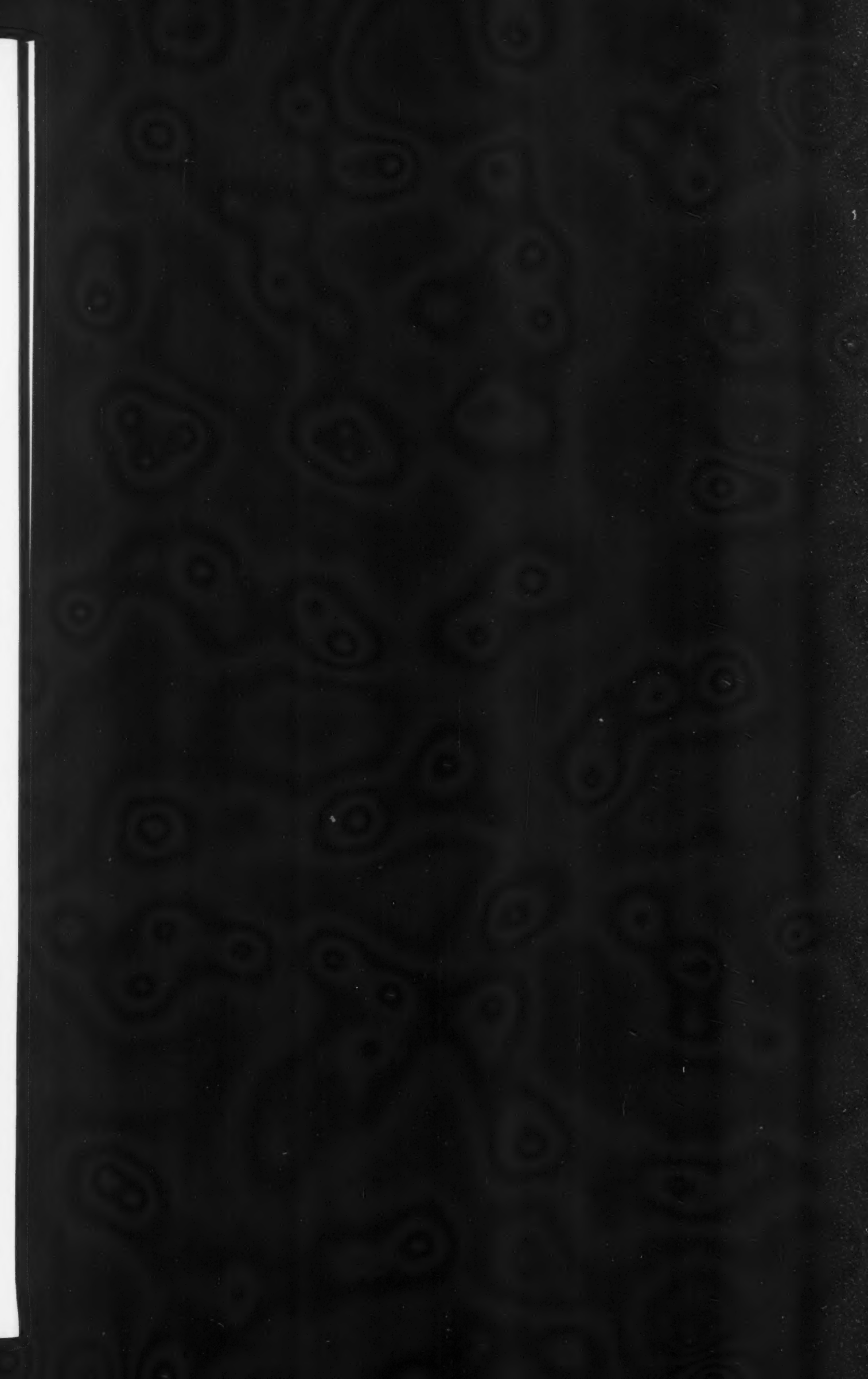
BRASS FOUNDERS FINISHERS J. J. RYAN & CO.
105-109 So. Jefferson St., Chicago.
Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS On Short Notice

"Search-Light"
GAS
Bicycle Lanterns
Send for Circulars and Electrotypes.
The BRIDGEPORT BRASS CO.
BRIDGEPORT, CONN.
Postal Telegraph Building, Broadway and Murray Street, NEW YORK.

GERMAN SILVER | NICKEL ANODES
Brass, Bronze, and Copper
THE SEYMOUR MFG. CO. - - SEYMOUR, CONN.

HENDRICKS BROTHERS
Manufacturers of
Sheet and Bar Copper, Copper Fire Box Plates and Staybolts, Wire and Braziers Rivets
Importers and Dealers in
Ingot Copper, Block Tin, Spelter, Lead, Antimony, Bismuth, Nickel, etc.
49 CLIFF STREET, - - - - NEW YORK

PHOSPHOR-BRONZE
GERMAN SILVER
THE RIVERSIDE METAL CO.
RIVERSIDE, N.J.



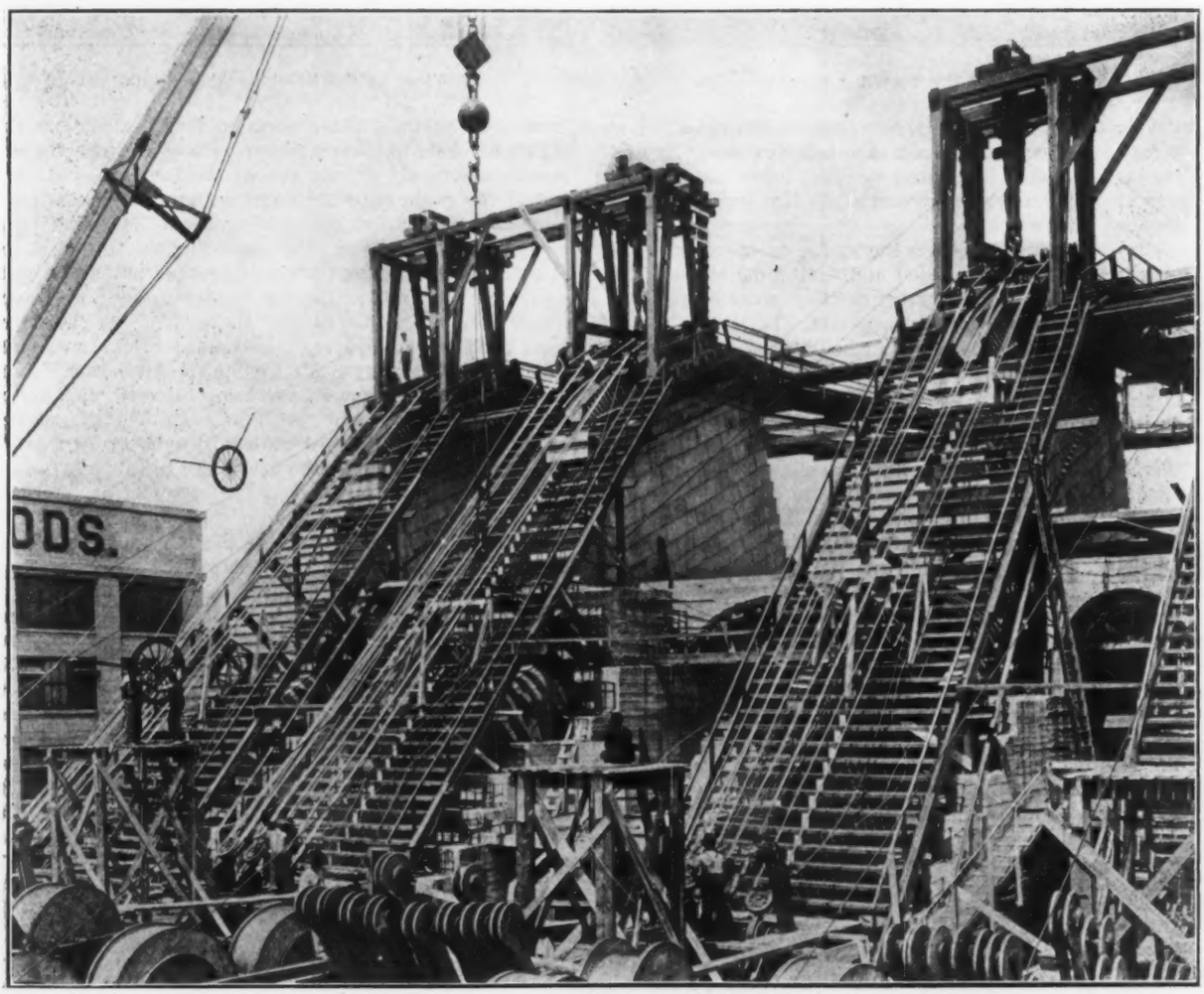
THE IRON AGE

New York, Thursday, September 17, 1908.

The Cables for the New Manhattan Bridge.

BY H. R. COBLEIGH.

Work on the Manhattan bridge across the East River connecting the boroughs of Manhattan and Brooklyn, New York City, has reached the point where the four permanent supporting cables are being assembled. Each cable will contain 9472 wires, which will be put in place as 37 strands of 256 wires each, and finally compacted into a circular cross section of a diameter of about 21½ in. Each wire is 0.195 in. in diameter (a little over 3-16 in.), and has a tensile strength of about 6000 lb., making the strength of each cable over 28,000 tons. The weight of the four cables will be over 6000 tons. Four strands of each of the four cables are now complete, and it is estimated that in a little over four months the cables will be finished and in position ready for the hanging of the suspenders and the beginning of the structural work.



View at the Brooklyn Anchorage.—The Traveling Sheave Working on the Left-Hand Cable Has Just Started. The Sheave Over the Scaffold Has Finished a Trip and Is Being Made Ready to Return, While the Bight of the Wire Is Being Passed Around One of the Shoes.

The manner of hauling the cables and the machinery involved holds a particular interest because of the speed with which it is being done and the improvements which have been made in the method of doing the work since the cables for the Williamsburg bridge were strung. The wires were of the same size in that case, but the plant was operated by steam engines and only two double wires were laid at a time. In the Manhattan bridge plant the stringing of eight wires can be in progress at once and the motive power is electricity. For stringing the wires of each of the four cables there is an independent equipment so that a delay from any cause on the work on any one does not affect the others.

The operation of stringing the wires of one cable as described in the following is identical for each of the other three. The stringing is accomplished by two traveling sheaves 3 ft. in diameter, suspended by wrought iron brackets from an endless ¾-in. steel rope. This rope extends from anchorage to anchorage and back again, and at the Brooklyn end makes two passes around a traction wheel. The grooved traveling sheaves are attached in diametrically opposite relation on the hauling rope, so that they move across the bridge in opposite directions. The brackets supporting the wheels are offset where they are attached to the rope, being provided at those points with what are termed goosenecks. This is for the purpose of clearing the idler wheels that support the hauling rope at the required hight above the position of the cable and at 11 practically equidistant points in each run of the rope. The idlers are carried by wooden gantrys on

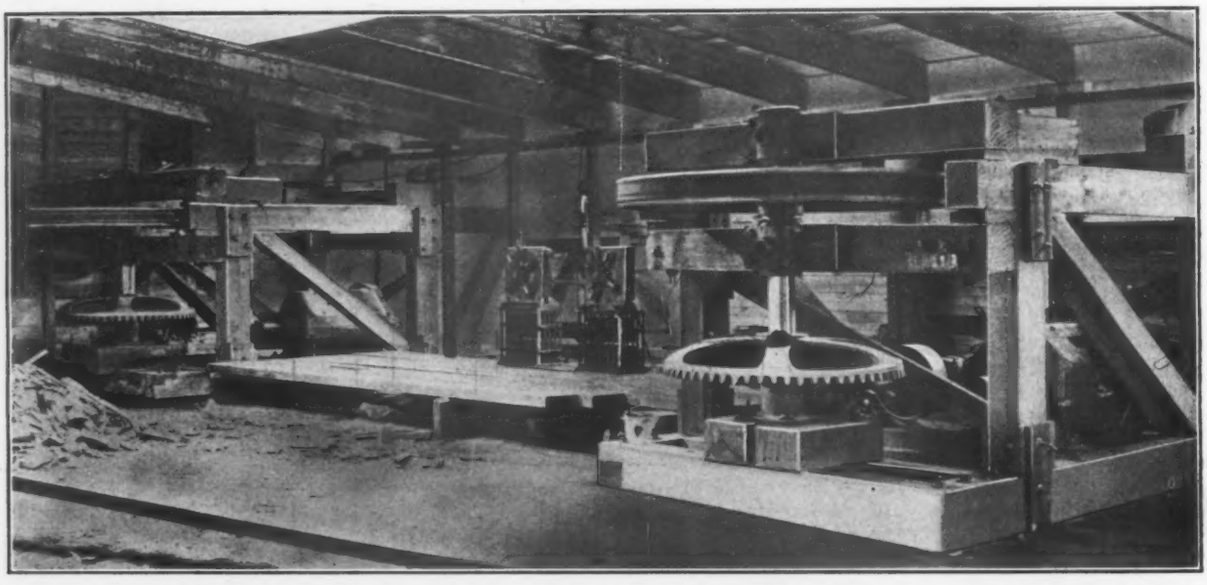
One of the Traveling Sheaves.

View on the Brooklyn Shore Span.

the temporary foot bridges, two on each end span, five on the middle span and one on each bridge tower. At each supporting gantry there are two idlers below the rope and one above it to keep it from whipping loose from the guiding wheels.

The wire is delivered to the bridge on enormous reels, weighing nearly 4 tons each and containing about 80,000 ft. of wire. An equal number of these reels is placed at each end of the bridge. In beginning the laying of each strand a guide wire is stretched from anchorage to anchorage, and adjusted by turnbuckles to hang with the proper deflection for that strand. With this as a guide each of the wires for the strand is adjusted after it is strung. At the start a wire from a reel at each end of the bridge is passed over the traveling sheave at that end, then around a shoe and is made fast at some convenient point near the anchorage. This being accomplished at each end the hauling rope is started, and each traveling sheave moves toward the opposite anchorage, laying one run of the wire as a dead wire and drawing the other after it from the reel at a speed that is twice that of the sheave. To avoid friction and scraping of the running wire it is successively caught by small idlers. When the sheaves have reached the other extremes of their travel the hauling rope is stopped, the bight of the wire is passed around another shoe in the anchorage and the hauling rope is started again, but in the opposite direction, and another two wires are laid in each of the two strands that are simultaneously strung by the two traveling sheaves. This operation is repeated, and the bights of the wires at each reversal of the sheaves are passed alternately around two of the four shoes at each end of the cable until the required number of wires are laid—256 in each strand, which means 64 round trips for each of the sheaves. Corresponding to the four shoes at each anchorage there are four grooved pulleys at each anchorage and four at the top of each bridge tower over which they are laid. Finally the end of the last wire from each of the two reels is coupled to the free ends which were originally made fast to the anchorage. During the laying the wires have been adjusted with reference to the guide wire, so that each has the proper length, and in the finished cable will hang in accordance with the catenary which the cables are to follow.

As each strand is completed it is bound at intervals of 5 or 6 ft., with three or four turns of wire. If it is found at this time that any of the wires of the strand draw out of the bundle or fall below it because they were not correctly adjusted before, these discrepancies in length are repaired by cutting out or inserting pieces, using couplings like those which join the initial and final ends of each wire. The wire as it comes on the reels is in lengths of from 3000 to 4000 ft., which are received already joined by couplings. The couplings are long sleeves, secured to one end of each piece of wire and into which the end of the next piece is threaded. Because of the lengths of the pieces and the distance between anchorages—3223 ft.—it is seldom that more than one



Two of the Four Independent Hauling Plants.—These Are Housed on One Side of the Brooklyn Anchorage. The Other Two Are on the Opposite Side of the Same Anchorage.

coupling occurs in any one of the individual wires of a cable.

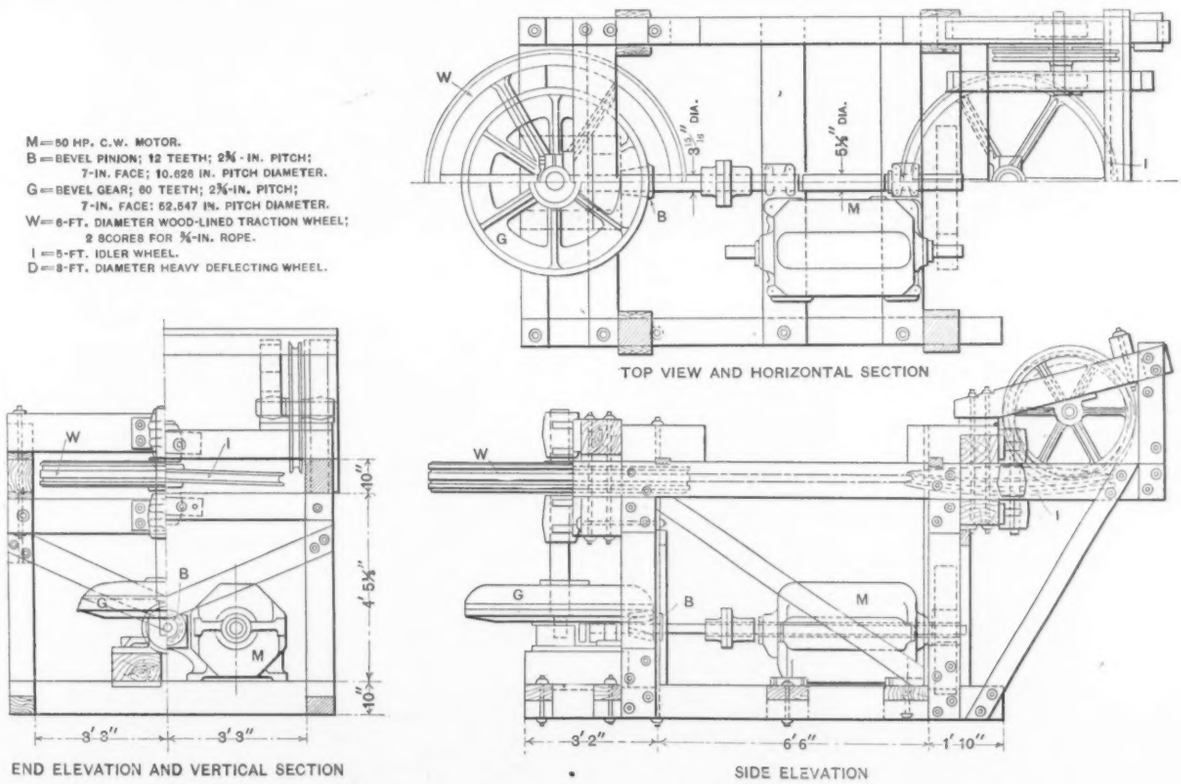
After a strand has been bound it is lifted from the grooved pulleys upon which it has rested up to this time, and by means of chain hoists is laid in its place in the permanent saddles. When all of the strands are finished the binding wires of the central strand will be removed and six more strands will be bound around it to form the core of the cable, and their individual binding wires will be removed. Then 12 strands will be bound around this core, their individual binding wires removed and the last layer of 18 strands bound in place. Finally, with all of the strand binding wires removed, the whole cable will be compressed into circular section by the bored clamps which will carry the suspenders and the cable will be wound with its protective covering. At the anchorages the cables will be flattened, the strands separating and extending to the numerous eyebars that will secure them to the masonry.

As has been said, there is a separate equipment for each cable, and this includes an independent hauling mechanism. One of the accompanying illustrations is a view showing two of these hauling drives, and the line drawing is a detail of one of them. All four of the hauling drives are housed on the Brooklyn anchorage. Each hauling rope is driven by a form W, 50 hp., 220 volt, fully-inclosed, electric motor built by the Crocker-Wheeler Company, Ampere, N. J., and designed especially for rolling mill duty. It is therefore well adapted for work of this kind where sudden overloads and frequent starting and stopping are likely. An instance of the need of instant control of the drive was afforded a short time ago when one of the traveling sheaves fouled one of the hauling rope supporting gantrys. This rope travels with a speed of 480 ft. a minute, and with a 50-hp. motor driving it, capable of considerable overload has a power not to be despised. As soon as the accident was discovered the current was cut off from the motor, and the rope stopped, but not until the supporting gantry was wrecked and had all but toppled over into the street.

Each driving motor is geared to a countershaft with a ratio of 5 to 1, and the countershaft through bevel gears drives the shaft of the traction wheel with another speed reduction of 5 to 1. The traction wheel is 6 ft. in diameter, and has wood lined grooves around which the hauling rope passes twice to produce the necessary grip. From the traction wheel the hauling rope passes over a 3-ft. idler wheel, thence across the bridge, over an idler at the other end and back to the traction wheel. One trip of the sheaves is made when no stop is required in about 7 or 8 min., but allowing for the interruptions for adjusting the wires, reversing the traveling sheaves, &c., it is considered that good speed is made if three trips are accomplished in an hour. In one of the best day's runs recently 600 wires were laid in the four cables.

The wire for the cables is being furnished by the John A. Roebling's Sons Company, the same company that supplied the wire for the cables of the old Brooklyn bridge over 30 years ago. The work of building the cables is being carried on by the Glyndon Contracting Company, New York City, under the supervision of the engineers of the Bridge Department of the city. Of the bridge as a whole, its character, dimensions, &c., much will be found in an article, "Specifications for the Manhattan Bridge," printed in *The Iron Age*, July 27, 1905. These specifications were later modified as explained in the issue of April 12, 1906.

The Iron and Steel Institute.—Among papers scheduled for the autumn meeting of the Iron and Steel Institute at Middlesbrough, England, September 28, 29 and 30 and October 1, are the following: "Scientific Control of Fuel Supply," by H. E. Armstrong; "Metallurgy at the Franco-British Exhibition," by H. Bauerman; "Gas Producer Practice," by W. A. Bone; "Constitution of Carbon Steels," by E. D. Campbell; "Freezing Point of Iron," by H. C. H. Carpenter; "Production of Finished Iron Sheets and Tubes in One Operation," by S. O. Cowper-Coles; "Chemical Control of the Basic Open Hearth Process," by A. Harrison and R. V. Wheeler; "Mechanical Cleaning of Iron Ores," by T. C. Hutchinson; "Bell Brothers' Blast Furnaces from 1844 to 1908," by Greville Jones; "Influence of Silicon on the Physical and Chemical Properties of Pig Iron," by A. Jouve; "Some Results of Experience with Electrically Driven Rolling Mills," by C. Koettgen and C. A. Ablett; "Electric Power Supply," by C. H. Merz; "Future Development of the Metal Mixer," by A. E. Pratt; "A Test for Ascertaining the Relative Wearing Properties of Steel Rails," by E. H. Saniter; "A Workshop Microscope," by J. E. Stead; "Analysis and Synthesis in the Foundry," by J. E. Stead and T. Westgarth.


M=50 HP. C.W. MOTOR.
B=BEVEL PINION; 12 TEETH; 2¾-IN. PITCH; 7-IN. FACE; 10.626 IN. PITCH DIAMETER.
G=BEVEL GEAR; 60 TEETH; 2¾-IN. PITCH; 7-IN. FACE; 52.547 IN. PITCH DIAMETER.
W=6-FT. DIAMETER WOOD-LINED TRACTION WHEEL; 2 SCORES FOR ¾-IN. ROPE.
I=5-FT. IDLER WHEEL.
D=8-FT. DIAMETER HEAVY DEFLECTING WHEEL.
TOP VIEW AND HORIZONTAL SECTION
END ELEVATION AND VERTICAL SECTION
SIDE ELEVATION
3'3"
3'3"
3'2"
6'6"
1'10"

Details of One of the Hauling Plants.—The Reference Letters and Key Designate the Parts.

A Boiler Test Showing Efficient Mechanical Stoking.

BY R. T. COE.

Much has already been printed concerning the immense new power plant and water works pumping station at Lardner's Point, Tacony, Pa. All the pure filtered water for supplying 1,100,000 inhabitants of the city of Philadelphia is handled at this plant. Between $3,000,000 and $4,000,000 has already been expended for buildings and equipment, this being but a small part of the large amount of money the city started out to invest about six years ago to provide pure water for the people, then drinking the contaminated water from the Schuylkill and Delaware rivers without purification. It is stated that within 10 gal. a head per day Philadelphia uses twice as much water as New York City, where 120 gal. a head per day is said to be required. The engineering of this stupendous undertaking involved the overcoming of complicated conditions, the distribution of intakes and outlets, and the locating and building of pumping stations. Over $25,000,000 has already been expended, and much more will likely be required before the work will be completed.

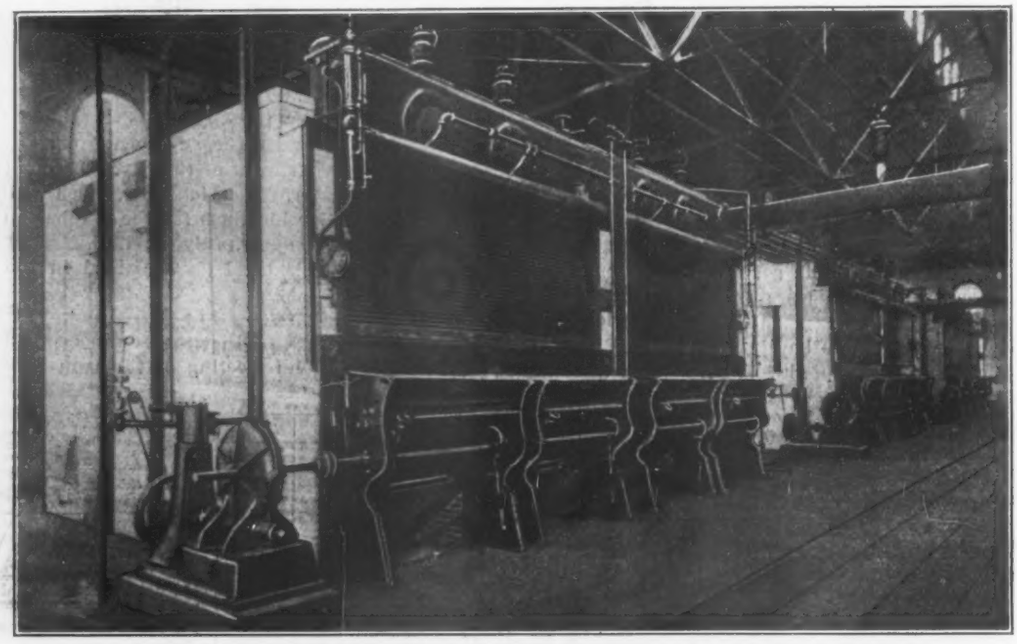


Fig. 1.—Boiler Plant in the Lardner's Point Pumping Station, Showing Stokers and Drive.

Fig. 2.—The Wetzel Mechanical Stoker, with Part of the Grate Bars Removed.

As only brief mention has previously been made of the boiler plant at the Lardner's Point pumping station, it is the object of this article to call attention to some of the details of that part, to give the record of an interest-

ing test made and to describe briefly the mechanical stoking equipment which had so important a bearing upon the production of the good results obtained. Fig. 1 is a view in the boiler plant, showing the stokers and the manner of driving them.

A test was conducted early this year to determine what evaporation and efficiency the boilers and stokers would show with coal of certain quality, and when operating at a capacity 25 per cent. in excess of the builder's rating. The A. S. M. E. standard code for boiler tests was followed. Coal and ashes were weighed and water measured in carefully calibrated tanks. Separate feed connections were made and independent feed pumps provided. All unused branches and connections, including blow offs, were blanked or disconnected. A running start and stop were made, the fires being thoroughly cleaned a certain time before starting and a like time before ending the test. Care was taken to have the fires in the same condition as nearly as possible at the end of the test as in the beginning. The fires were also cleaned at about the middle of the test. The usual pressure, draft and temperature readings were taken at intervals of 15 min., and the results given in the test records are averages. A double check was kept on all coal and water weights and measures. Gas samples were collected and analyzed at intervals throughout the test, the average results of which indicated an air consumption of 17.22 lb. per pound of dry coal and a loss of only 0.29 per cent. through incomplete combustion of carbon.

The boiler which was tested is one of the six 500-hp. Edgemoor sectional water tube boilers. The boilers are set two in a battery and are connected by underground flues, with two Custodis chimneys, 7 ft. in diameter by 150 ft. high above the boiler room floor. Each boiler comprises two horizontal steam and water drums, 34½ in. in diameter by 18 ft. long, which connect at either end into large rectangular stayed water legs (10 in. wide inside), between which are expanded 254 straight tubes 4 in. in diameter by 18 ft. long, set on an incline of 1 in. to the foot. The bottoms of the front headers of the boilers are set 7 ft. above the floor line. Three transverse plates are provided for directing the gases in an upward and downward path across the tubes from front to rear, the gases escaping from the last pass downwardly into an underground flue in the rear of the boilers.

The test was very exhaustive and all the details will not be gone into, but the following extracts are cited, bearing as they do upon the final results:

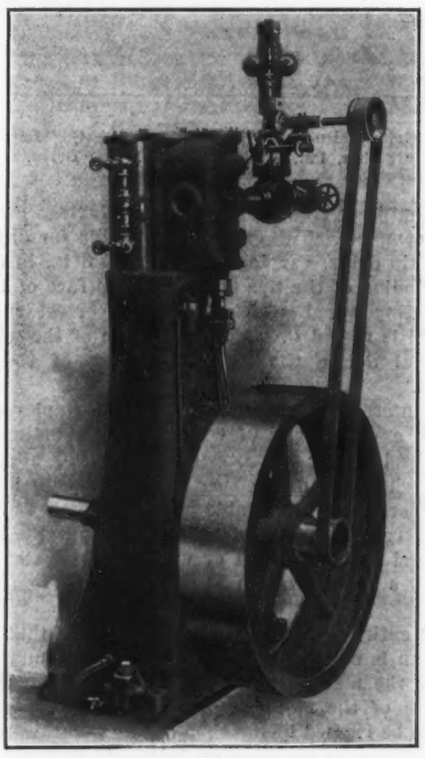


Fig. 3.—American Blower Company's Type A Engine Used to Drive Wetzel Stokers.

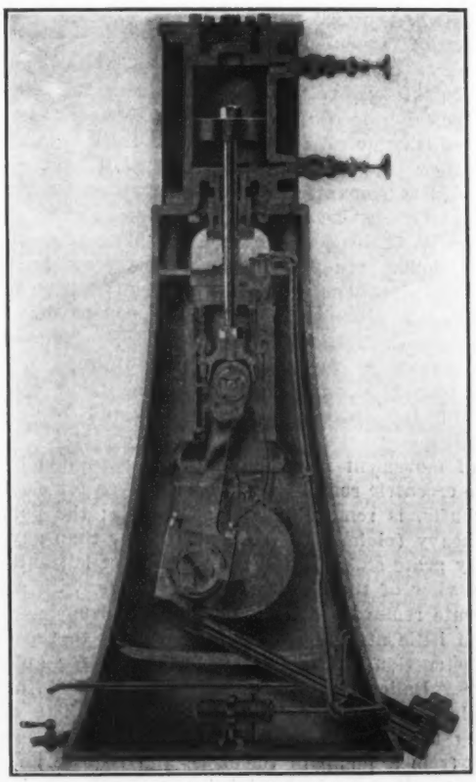


Fig. 4.—Section of the A. B. C. Engine Showing Interior Lubricating Arrangement.

Duration of test	24 hr.
Water heating surface of boiler	5,052 sq. ft.
Width of grate	2 x 6 ft.
Length of grate	8½ ft.
Area of grate	102 sq. ft.
Ratio of water heating to grate surface	49½ to 1
Kind of grate	Wetzel mechanical stoker.
Hight of stack above the dead plate	147½ ft.
Area at top of stack	38½ sq. ft.
Boiler pressure gauge	128.9 lb.
Draft in the flue behind boiler	0.628 in.
Draft in the furnace	0.335 in.
Average temperatures:	
External air	31.35 degrees F.
Water entering boiler	39.2 degrees F.
Escaping gases	475.9 degrees F.
Coal used	"Henrietta," a semi-bituminous fuel from Columbia County, Pa
Coal analysis:	
Moisture	3.56
Volatile combustible	18.75
Fixed carbon	74.82
Ash	6.43
B.t.u. per pound dry coal	14,7.0
The coal made a gray ash and a small amount of nonfluxing clinker which gave no trouble in the operation of the stoker.	
Total coal consumed	46,750 lb.
Total dry coal	45,086 lb.
Total refuse in coal	3,168 lb.
Total combustible	41,918 lb.
Total heat per pound of dry coal	11,346 B.t.u.
Total water supplied	425,547 lb.
Total water evaporated (corrected for quality of steam)	432,455 lb.
Equivalent water evaporated into dry steam from and at 212 degrees F	529,714 lb.
Same per hour	22,071 lb.
Water evaporated per pound of dry coal under actual conditions	9.592 lb.
Equivalent from and at 212 degrees F	11.749 lb.
Equivalent per pound of combustible from and at 212 degrees F	12.637 lb.
Water evaporated per hour from and at 212 degrees F. per square foot of heating surface	4.368 lb.
Same per square foot of grate surface	2,164 lb.
Dry coal burned per square foot of grate surface per hour	18.41 lb.

Considering the above hourly rates of evaporation and combustion reveals the most interesting results. On the basis of 34.5 lb. evaporation per hour, from and at 212 degrees, the horsepower developed was 639.74. The maker's rating being 500 hp., the result was nearly 28 per cent. above the normal rating with a heating surface of

7.89 sq. ft. per horsepower developed. The combined efficiency of the boiler and furnace was 76.82 per cent., which is rather exceptional considering the fact that natural draft was relied upon for moving the gases.

Each boiler is equipped with two Wetzel mechanical stokers 6 ft. wide. A brick wall 13 in. thick separates the two furnace compartments and serves to divide the stoker arch into two spans. The stokers are of the inclined grate pattern. The inclined or active portion of the grate is 7½ ft. long, while the dump plate at the bottom is 2 ft. long. (In figuring the active grate arch, half the dump plate was taken into account.) Each battery of boilers is provided with an independent direct connected American Blower Company's fully inclosed self-oiling stoker engine, which drives through a worm geared speed reducing mechanism the main operating shaft of the stokers. The feeding and bar moving mechanisms are operated by separate eccentrics, the extent of movement in each case being regulated by nuts on the eccentric rods. Every bearing, even for slow moving shafts, is removable and adjustable; the parts are very heavy (claimed 35 per cent. heavier than any other gravity grate stoker), and the repair cost is small. Fig. 2 is a view of the stoker from the inside, with some of the grate removed to expose the mechanism.

Too little attention is sometimes paid to the details of construction of the driving mechanism for automatic stokers. Boiler rooms, being of necessity dirty, are trying places for reciprocating machinery. The engines driving the Wetzel stokers are fully inclosed, are self-oiling from a pump in the base, and require no oiling, except to fill the cylinder lubricator about once in three months or more, and no more frequent adjustment. Fig. 3 shows the exterior of one of these engines and Fig. 4 a sectional view showing the interior lubricating arrangement.

After the operation of the above described equipment about three months, the stokers and engines meeting with the approval of the city engineers of Philadelphia, contracts were awarded for an additional 4000 hp., making 7000 hp. in all.

Pig Iron in France.—The production of pig iron in France in the first half of 1908 slightly declined, having been 1,746,634 metric tons, against 1,797,843 tons in the first six months of 1907. Over one-half, or 982,098 tons, was basic Bessemer. Forge iron followed with 314,163 tons; foundry iron with 294,603 tons, exclusive of 56,334 tons of direct castings, and Bessemer iron with 66,746 tons. The Meurthe-et-Moselle District led with 1,173,872 tons, the Nord District adding 254,436 tons. The Loire and Midi produced 101,737 tons and the Centre and West 99,516 tons. The consumption of material was 3,862,252 tons of domestic ore, 854,837 tons of foreign ore (chiefly from Luxemburg and Lorraine), 128,427 tons of manganese ore and 329,055 tons of scrap, cinder and blue billy.

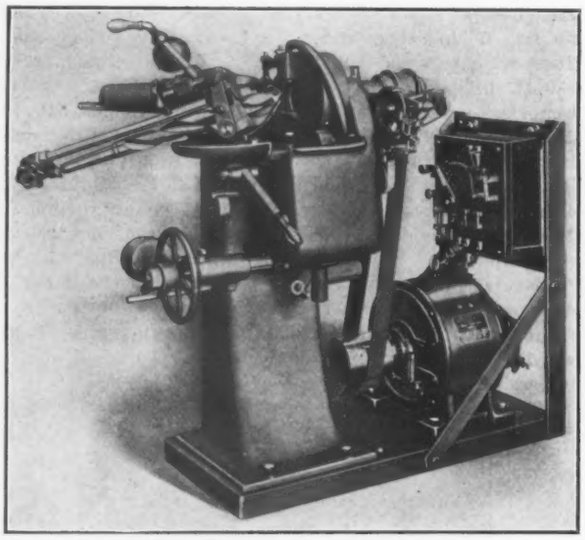
The Heppenstall Forge & Knife Company is making important improvements in its plant at Forty-seventh and Hatfield streets, Pittsburgh. The old building, formerly used for storing billets, has been removed, and a new one of steel construction, 55 x 90 ft., has just been erected by W. N. Kratzer & Co., Pittsburgh, which contains a 10-ton Shaw electric traveling crane, with a 25-ft. runway. The Heppenstall Company is now placing concrete foundations for a new steel structure, 77 x 147 ft., which is to be erected by the John Eichleay, Jr., Company, Pittsburgh. This is an extension to the forge shop, and will contain two new heating furnaces, a 150-hp. Cahall waste heat boiler and a coal handling equipment, consisting of a Sprague electric grab bucket for carrying coal from the storage bins to the various furnaces. This latter building will be completed about October 15. The Heppenstall Forge & Knife Company makes a specialty of shear knives and forgings of every description, and reports an increase in this line of business.

The Bettendorf Axle Company, Davenport, Iowa, secured a new factory site several years ago, which enabled the company to extend its operations to the manufacture of all classes of railroad equipment, including the building of complete cars. Its large plant at Bettendorf, a suburb of Davenport, is being constantly extended and further equipped with improved machinery to enable it to take care of its rapidly increasing business. This company has now over 500,000 bolsters in service, and the Bettendorf ideal car truck with the one piece frame is rapidly being adopted by the railroad systems of the country. An order for 2500 steel under frames for the Chicago, Milwaukee & St. Paul Railroad is now being filled at the rate of about 25 a day.

A Sellers Motor Driven Drill Grinder.

There is a theoretically correct way to grind a drill to obtain the maximum amount of work from it. Hand grinding cannot accomplish this, hence hand ground drills generally require more power than is necessary, and, moreover, an incorrectly ground drill will not bore a hole to uniform size. Drills correctly ground and pointed will not only drill to size with minimum power, but when straight will produce less wear on the drill press than if incorrectly ground or out of true. In the latter case the force required to hold the drill steady brings a strain on the drill press which causes the bearings of the spindle to wear.

The drill grinding machine illustrated is manufactured by William Sellers & Co., Inc., Philadelphia, Pa., and is equipped with a standard Westinghouse 2-hp. motor. The



A Drill Grinder Built by William Sellers & Co., Inc., Philadelphia, Pa., Equipped with Motor Drive.

entire outfit is self-contained, with starting switch and motor complete. The grinder is suitable for any type of double tip drills, varying from 5-16 to 3 in. in diameter. The grinding of the tips is done on the face of the stone, or grinding wheel, which insures a correct surface, as the drill is moved over the entire face of the wheel. By a special device the correct pointing of the drill is secured.

An interesting feature is the means employed to provide an ample supply of water at the grinding surface. The wheel proper is protected by a cover at all points except where the drill comes in contact with it. On the cover there is an adjustable nozzle through which water is delivered in an abundant flow to both the drill and the wheel without splash or waste. The water is circulated by a small centrifugal pump driven from the main motor.

The entire equipment is very simple, so that a skilled workman is not required; any man of ordinary care can operate the machine with perfect satisfaction. The application of the motor to this grinder permits the machine to be located in the shop at any point desired, without reference to shafting or belts. It secures the maximum economy of driving power, inasmuch as the entire outfit may be stopped when not in use.

The Bridgeford Heavy Gap Lathe.

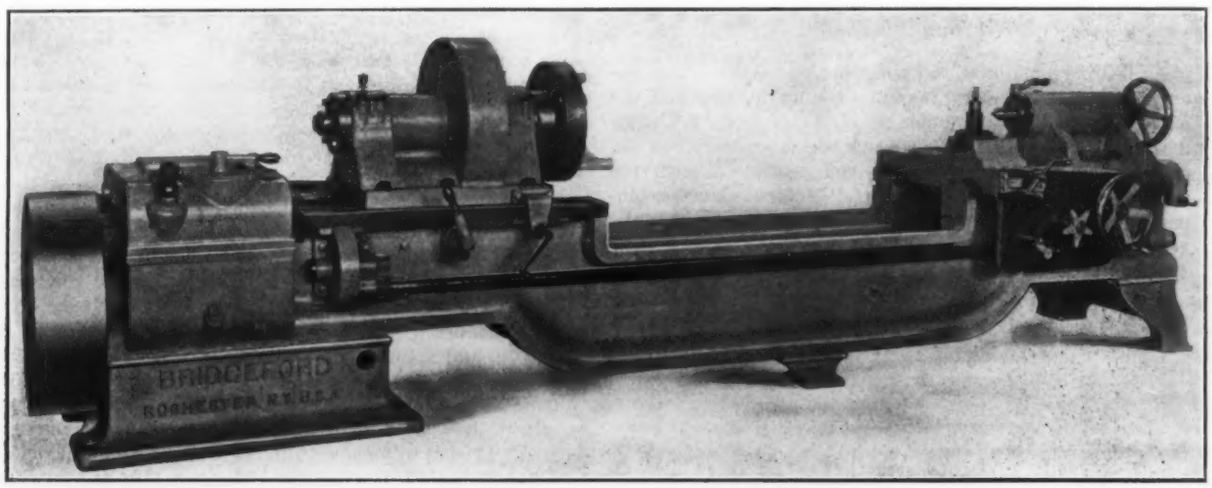
A new heavy gap lathe, manufactured by the Bridgeford Machine Tool Works, Rochester, N. Y., especially for refinishing car axle journals without removing the wheels, is shown in the accompanying illustration. It can also be used as a single end axle lathe, the headstock being moved along the bed by a rack and pinion so as to bring the wheel fit within range of the carriage. For refinishing engine truck axle journals, the lathe is built with an extra carriage arranged between the wheels, leaving a short gap on each side.

There are three variations in the cutting speed, obtained by a speed variator through heavy cut steel gearing running in oil, and the bearings are so constructed as to receive ample lubrication. The changing of the speed is accomplished by shifting levers conveniently located on the case. The power is applied to a constant speed pulley and is transmitted from the speed variator to the driving head by a shaft placed within the frame. The driving head is of very heavy and powerful construction, and the spindle and all driving shafts are of high carbon steel, and run in brass boxes scraped to fit. The end thrust is taken by an adjustable step bearing. The driving gear is entirely encased and the head is furnished with a double self-centering steel driver.

Four instantaneous changes of feed ranging from 1-16 to 3-16 in. to one turn of the axle are obtained through a feed box. The gears, which are of steel, run in oil and are operated by a lever placed in front of the headstock. The direction of the feed is changed at the apron, and the carriages are independent of each other. The carriages are driven by a splined feed shaft through a rack and pinion, and each has a bearing on the V's of 30 in., which is scraped to fit. Each also has a bearing on the back of the bed which takes the forward thrust, thus overcoming the tendency to raise from the V's when the burnisher is used.

The tailstock has a bearing on the bed of 24 in. It is moved by a rack and pinion and is secured in position by four heavy bolts and binders, and may be set over for taper turning if desired. It is adjustable by means of a screw and handwheel and is clamped by a split binder.

Some of the important dimensions of the lathe are as follows: The rack is steel and of 6 pitch and 1⅝ in. wide; diameter of feed shaft, 1 15-16 in.; distance between centers, 8 ft. 4 in.; swing over the ways, 27 in.; swing over the carriage, 14 in.; swing in the gap, 45 in.; diameter of the centers, 2 7-16 in.; diameter of driving pulley for 8-in. belt, 30 in., and net weight of the machine 15,500 lb. The bed is very rigid, being strongly reinforced by crossties of box pattern. The countershaft carries a pulley corresponding to the driving pulley on the lathe, and also tight and loose pulleys 24 in. in diameter for a 10-in. belt.



A Lathe for Turning Car Axle Journals Without Removing the Wheels, Built by the Bridgeford Machine Tool Works, Rochester, N. Y.

The Herman Pneumatic Machine Company, Zelienople, Pa., has recently erected a building, 100 x 400 ft., in which six pneumatic molding machines have been installed. It is at work on one of the largest molding machines ever built, being 5 x 14 ft. in size. Commencing this week the company will operate its machine shop double turn, this being made necessary on account of the heavy orders received for the larger sizes of molding machines.

The Production of Chromite in 1907.

The production of chromite, or chromic iron ore, in the United States in 1907 amounted to 209 gross tons, valued at $5640, according to the forthcoming annual report of the United States Geological Survey. The domestic production, which was confined to California in 1907, is very small, when compared with the consumption of chrome ore in this country. The demand is supplied from foreign sources, chiefly Asiatic Turkey and New Caledonia. The maximum production of the United States for any one year was in 1894, when the quantity mined was 3680 gross tons, valued at $53,231, but this value was slightly exceeded in 1890 when the output amounted to 3599 gross tons, valued at $53,985.

Chromite is widely distributed both in the Southeastern and the Western parts of the United States, where it is usually associated with certain basic igneous rocks, but it occurs at few localities in sufficient quantity to constitute an ore of chromium. In the States along the Atlantic slope no deposits of chrome ore are worked on a commercial scale, though it is probable that with the extension of railroad transportation some of the deposits will be exploited. The only active chromite mines in the United States are in California, where there has been a small production for many years.

Chrome ore is used principally in making ferrochrome alloys and for hardening steel, usually in combination with nickel in the manufacture of armor plates. It is also used extensively in the manufacture of chromium salts for pigments. All the product of the California mines for several years has been used in the crude state for linings of copper furnaces.

The imports of chrome ore during the past seven years have fluctuated throughout a wide range, and are shown in the following table:

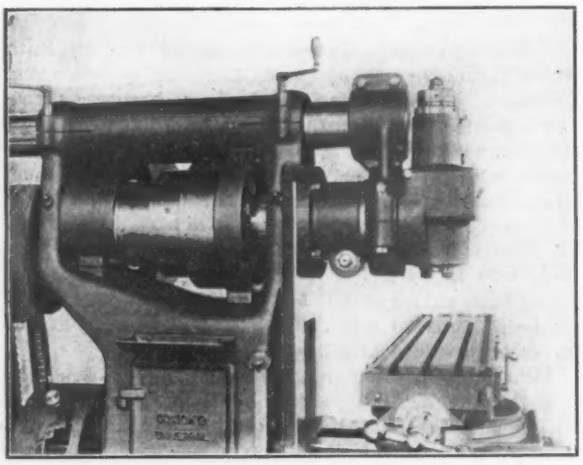
Imports of Chrome Ore, 1901-1907.

Year.	Gross tons.	Value.	Year.	Gross tons.	Value.
1901	20,112	$363,108	1905	54,434	$725,301
1902	39,570	582,597	1906	43,441	537,594
1903	22,932	302,025	1907	41,989	491,925
1904	24,227	348,527			

In the last few years the mining of chromite in the Dominion of Canada has developed into an industry of some importance, though the production in 1907 was less than in either of the preceding two years. In 1902 the Canadian output was 900 tons, valued at $13,000, but thereafter it rose rapidly until 1906, when the production was 8750 tons, valued at $92,100. In 1907 it declined to 7196 tons, valued at $72,901.

The Oesterlein Vertical Milling Attachment.

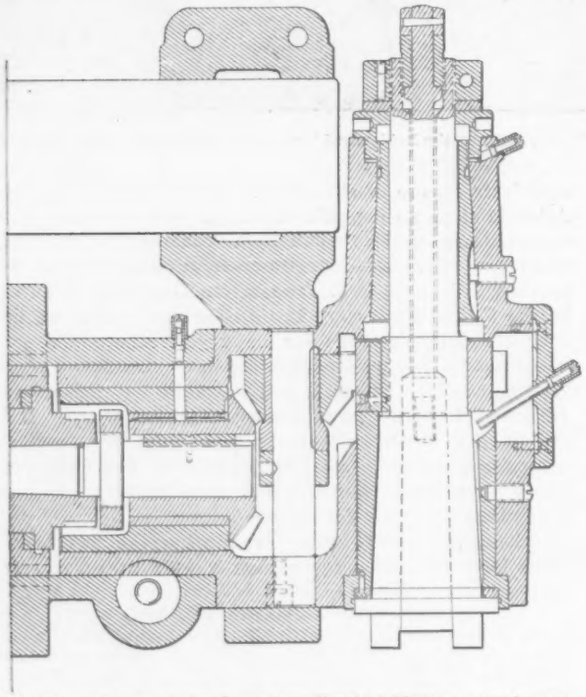
A new attachment just brought out by the Oesterlein Machine Company, Cincinnati, Ohio, for quickly converting a horizontal miller into an efficient vertical milling machine is shown in the engravings herewith. It was designed for the company's No. 30 universal and No. 34



The New Vertical Milling Attachment Made by the Oesterlein Machine Company, Cincinnati, Ohio.

plain milling machines, and will take as heavy a cut without chattering, as can be taken on the main spindle of the machine directly. Although no claim is made for originality, the designer had in mind the most approved application of the principles involved consistent with the present demands on machines of this type. The accompanying half-tone illustration shows the appearance of the attachment when applied and ready for use, and the line drawing gives a section that makes clear the mechanism.

The driving spur gears on the vertical spindle, having been placed above the horizontal spindle, the cutter may



Sectional View of the Oesterlein Vertical Milling Attachment.

be brought as close as possible to the horizontal spindle which gives the maximum distance below the cutter and the least distorting leverage on the attachment. The head is graduated and can be swiveled 360 degrees. The spindle is readily adjusted to compensate for wear. It has a ¾-in. hole through its entire length and the front end is bored with a No. 11 Brown & Sharpe taper. The nose of the spindle has a 3¼-in. diameter, 3½-in. pitch, right hand thread to hold cutters, which is the same as the thread on the spindle of the machine, so that the same tools may be used on both. The lower journal of the spindle is tapered and is 3¼ in. in diameter at the largest point and 5¼ in. long. The top journal is 2 in. in diameter and 5¼ in. long. A ⅝-in. draw-in bolt is provided to hold cutters with shanks. The distance from the center of the spindle to the face of the column is 12 in. The distance from the lower end of the spindle to the table when the latter is in its lowest position is 13½ in. The net weight of the attachment is about 260 lb.

The Port Arthur and Soo Plants.

TORONTO, September 12, 1908.—The granting of an order, September 7, by a high court judge in this city for the winding up of the Atikokan Iron Company is not expected to have an adverse effect upon the industry itself. The company's blast furnace at Port Arthur closed down last fall and has not been operated since. Various reasons were given for the stoppage. Financial depression, acting upon the consumers of pig iron, was put forward as one of them. Another was that the pig iron made was not of a class for which the demand was large. From time to time there appeared in Port Arthur newspapers expressions of hope, promises even, that the works would start up in the spring. But spring and summer both passed away without any renewal of operations there. The application for the winding up order was made by Mackenzie & Mann of this city, who have the controlling interest in the company. Some weeks ago Mr. Mackenzie was reported by a Port Arthur paper to have said in an interview of about the same date that the furnace would be started up as soon as internal differences were settled. This was the first intimation that the closing down was caused by friction between parties in the company. R. A. Ruttan, chairman of the Finance Committee of the Port Arthur City Council, has expressed the opinion that the winding up of the company would have a good effect upon the city's interest. The city guaranteed the company's bonds in the sum of $200,000, and stands for an additional $25,000 on account of the site. The chairman of the city's Finance Committee states to the Port Arthur *Daily News* that the application was probably made as a means of putting an end to contentions within the company, adding that he understood these were the chief cause of the suspension of operations at the plant. He thought it likely that the course taken would mean "the freezing out of at least one of the interests which has been clashing with the others and will thus pave the way for a resumption of operations." The company was incorporated in 1905 with a paid up capital of $1,000,000. Standing at the head of the lakes, on the edge of the iron field of Thunder Bay and Rainy River, and on the threshold of the consuming West, it appeared to have a bright outlook.

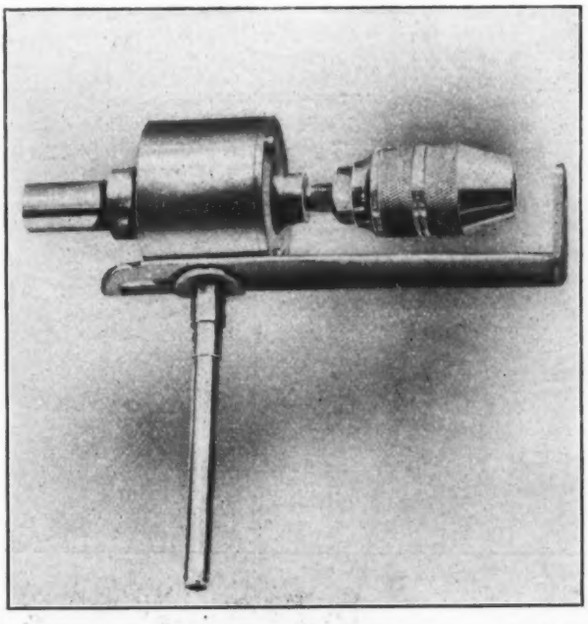
The reopening of the Algoma Steel Company's steel plant and rail mills is not to be deferred to October 1, as was announced a fortnight ago, but will take place September 15, the day the blast furnaces are to be relighted. The reason given for beginning so much earlier than was intended is that rush orders have been received, one for 15,000 tons for the Grand Trunk Pacific being said to be among these. These orders come to the Sault mill at a time when American competitors are reported to be quite active on this side of the line.

The Wilbur Iron Ore Company, much of whose output was taken by the Algoma Steel Company, has gone into liquidation. Pending settlement possession has been granted to William Caldwell of this city, who formerly owned the mine. It is on the line of the Kingston and Pembroke Railway. C. A. C. J.

W. M. Corse, secretary of the American Brass Founders' Association, 54 Lothrop avenue, Detroit, Mich., has issued a directory of the membership, which now numbers 175 individuals and firms, including many of the most progressive brass and aluminum founders in the country.

The Bonney Automatic Reversible Tapper.

For tapping small holes—that is, up to 5-16 or ⅜ in. in certain cases—C. S. Bonney, Irvington, N. J., has designed and is manufacturing an automatic tapping machine herewith illustrated. This is a light running tapper, with which it is possible to use very small taps with less likelihood of breaking them than when using the heavier tappers now generally in use. In fact, the machine may be regarded as a mean between the friction tapper and the heavier geared tapper. Like the latter, however, it is positive in its drive, there being no chance for slip in the driving mechanism, and the tap itself is ingeniously prevented from turning in the chuck. Attached to the device is a stop gauge adjustable in its setting, so that holes can be tapped to uniform depth. Important to this end is the fact that the taps are held against endwise movement in the chuck. The jaws of the chuck are notched on the interior so that by drilling a small hole in the tap shank and inserting a pin, this pin will engage



The Bonney Automatic Reversible Gear-Driven Tapping Attachment for Use in Lathes and Drill Presses.

in one or another of the notches of the chuck and prevent the tap from being displaced longitudinally.

To obviate turning of the tap in the chuck it is recommended that the shank be ground flat with three equiangular faces corresponding to the three jaws of the chuck, so that a firm grip may be obtained. A simple method has been devised for grinding the taps in this way rapidly and more accurately than would be possible with the eye. A triangular prism is furnished in the center of the end of which the tap is screwed leaving the shank end projecting. The center line of the tap is then coincident with the center line of the prism, which affords a holder, and by successively resting the prism on its three flat faces and presenting the shank of the tap to the grinding wheel the three flat surfaces are ground at angles of 60 degrees with each other. For operating the gripping mechanism of the chuck a spanner is furnished enabling the chuck to be more firmly tightened than is possible with the hand. This also conduces to preventing the tap from slipping in the chuck.

In use the spindle of the device is secured in the chuck of a lathe or drill press, and the lateral rod attached to the body of the tapper is allowed to come against some fixed part of the lathe or drill to prevent the attachment from turning as a whole. The main spindle runs continuously in the same direction, and carries a pin which engages a pin on the chuck shank. The latter is the condition when the tap is being driven in the work. The shank of this chuck has a fixed amount of axial movement, so that when the tap has been entered into the work the required depth a movement to withdraw the work disengages the pins which form the positive clutch between the chuck spindle and driving spindle, and causes the pin on the former to come in cantact with a similar pin on a bevel gear in the forward side of the body. This gear being driven through a bevel pinion from a bevel gear on the driving spindle runs in the opposite direction to that of the driving spindle, and causes the tap to reverse and back out of the work. The stopping and reversing of the tap is automatically effected when the stop gauge is used, when the work is allowed to come up against the stop; further forward driving of the chuck has the effect of pulling the chuck spindle out of engagement with the driving clutch, and momentum carries it forward so it engages with the reversing gear and automatically backs out. The Bonney tapper is sold at a moderate price, and is claimed to be strong and durable.

The Proposed Iron Combination in Russia.

The formation of a large combination or syndicate of South Russian iron companies is still in the preliminary stages. Financial questions have been important considerations and the attitude of the Russian Government is a matter of doubt. Its position as a buyer would presumably not be improved by the formation of the proposed organization, and it is understood the Government will make larger purchases of rails and other material in the next year or two than for some years. Formerly it bought over 300,000 tons of rails a year, but in 1906 and 1907 this amount was cut down about one-half. London *Engineering* says of the possible effect of a Russian consolidation upon the iron industry of Russian Poland:

In spite of circumstances which at one time were stated to have proved fatal to the formation of the contemplated union, the latter is now understood to be approaching its realization, even if the question of who are to be at the head seems to give some considerable trouble. The relations between the projected union and the metallurgical industry of Russian Poland are attracting special attention in Germany, because the metal industry of Silesia is much interested in the Polish industries in question. The blast furnaces of Russian Poland have to draw their supplies of iron ore from the Donetz District, and the price of this iron ore is understood to be 8 kopecks per pood (10s. 6d. per ton) at the mines, while it costs the Polish blast furnaces 20 kopecks per pood, owing to freight and other expenses. Coke is subject to similar conditions, the figures being respectively 13 and 27 kopecks. The production of a pood of pig iron in Russin Poland in consequence entails a cost of 60 kopecks (80s. per ton), and in the Donetz District 41 kopecks. The difference in price is of course greatly affected by the freight, for the transport of a pood of iron from the Dombrowa District to Warsaw costs 11 kopecks, and from the Donetz District 24 kopecks. The South Russian Iron Works, however, still have a notable advantage in price, which would be increased by the formation of a trust. So far matters have been regulated by the two syndicates—Prodanieta (plate and rails) and Gwozdz (wire)—and it is a question of the utmost importance for the metallurgical industry of Russian Poland whether or not these syndicates will remain in junction after the formation of the union. Should this not be the case the Polish works will have to blow out their blast furnaces (the number has already been reduced from ten in 1906 to eight in 1907) and buy their pig iron from the trust.

The Youngstown Car Mfg. Company, Youngstown, Ohio, has received an order from the United States Government for eight 15-ton steel cars, to be shipped to the Panama Canal. This company recently shipped a specially designed steel freight car of 160,000 lb. capacity to be used in the San Francisco navy yard. The plant is running to nearly full capacity, with a fair amount of work ahead.

The Wright Separable Metal Barrels.

As to what is the most economical container for products such as cement, lime and plaster has been a problem with the manufacturers for some time. A package of barrel form is ideal, but wooden barrels are constantly increasing in cost and are good for only one shipment, as the cost of returning empty wooden barrels to the shipping point is prohibitive, and there is little salvage on second-hand barrels. The expensiveness of barrels as a carrier has therefore been responsible to a large extent for the use of paper, cotton and jute bags, which generally hold about a quarter of a barrel. Cotton and jute bags are usually returned, but the greater number of them for a given quantity of material handled and the annoyance of counting, recounting, packing and reshipping and repairing them, to say nothing of the disputes arising from claims and counterclaims between the shipper and receiver, are serious disadvantages.

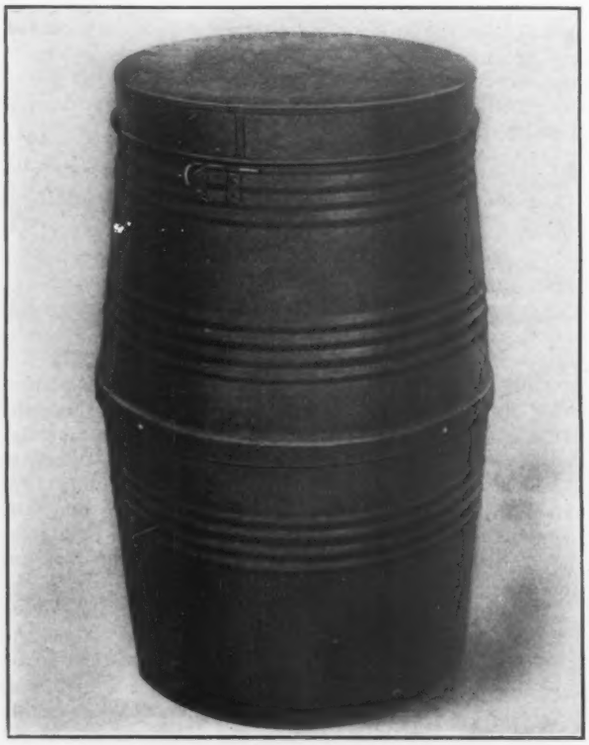


Fig. 1.—One Form of the Wright Metal Barrel Assembled.

As one concerned in finding a better solution of the matter, Steve M. Wright of the Wright Lime & Cement Company, Memphis, Tenn., has been working for more than a year in perfecting a metal barrel, the halves of which are separable so that they may be nested for returning in compact form when empty. While their cost, which will be about $1, is a little more than that of two wooden barrels or four jute bags, the fact that they are good for at least 15 round trips makes them more economical. The filling and assembling of them takes less time, as does also the repacking of them for return shipment, so that from this standpoint also they have an economical advantage. The barrels are made of japanned sheet iron and present an attractive appearance, and are claimed to present much greater resistance to breaking and crushing than wooden barrels. They are suitable for all classes of goods where wood barrels are or have been employed, including bottled goods wrapped in straw or excelsior.

The joining of the barrel is such that the two parts may be firmly secured together without offering obstruction to the rolling of the barrel, and they can be readily nested when taken apart for shipment. The barrels are also provided with a removable lid and means for securely fastening it in position without obstructing the outer surface of the barrel, and in particular strengthening means are provided for the body of the barrel. In the accompanying illustrations, Fig. 1 is a view of one form of the barrel assembled; Fig. 2, a vertical section of this barrel; Fig. 3, a view of one barrel taken apart and also two halves nested for shipping; Fig. 4, a different manner of securing the lid, and Fig. 5, assembled and unassembled views of a barrel of modified form in which different means are employed for securing the two halves together and the lid in place.

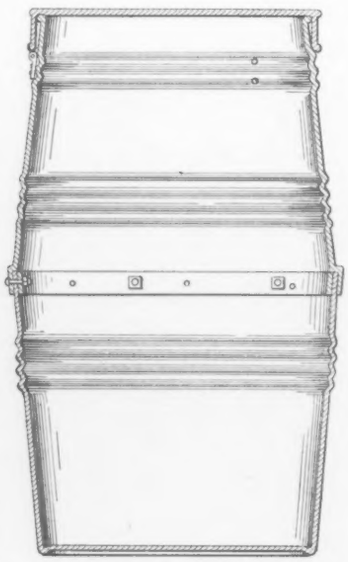


Fig. 2.—A Section of the Barrel Shown in Fig. 1.

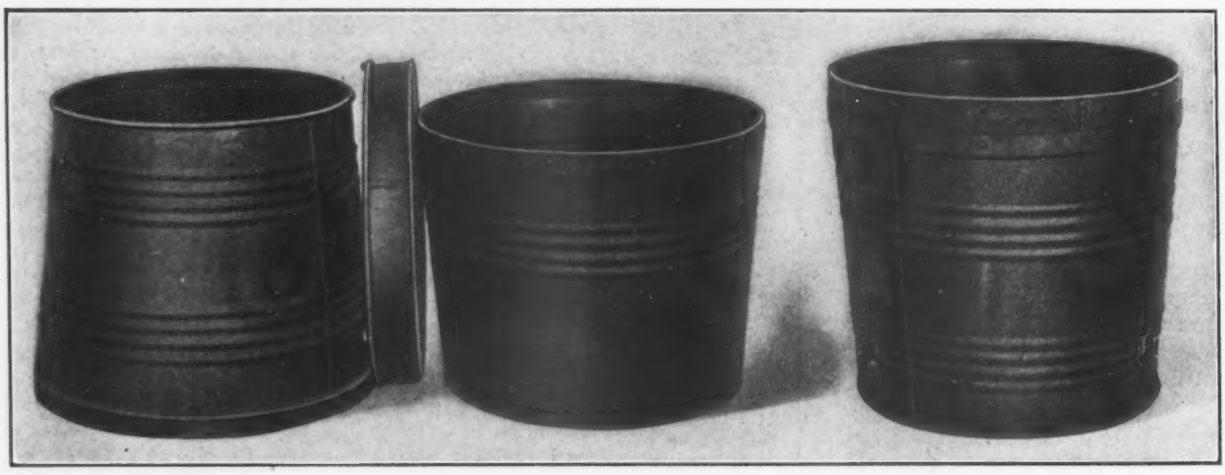


Fig. 3.—The Parts of the Same Barrel Unassembled and Nested.

As may be seen from the illustrations, the upper and lower halves of the barrel are in the shape of frustums of cones, and their larger ends meet at the middle of the barrel. Each section has a series of beads which increase the rigidity of the barrel, and in these spring hoops may be inserted if desired for greater strength.

The bottom of the lower section is countersunk to raise it from contact with the ground and protect it. At its upper circumferential edge the lower section is provided with an interior band of iron rigidly secured to the barrel so as to provide a strengthened and stiffened rim at the junction with the upper section. This band also provides a sufficiently rigid structure to form a substantial support for the section fastening means. The lower section fits within the upper section, the lower rim portion of the upper section being offset or flared, forming a vertical flange and a horizontal shoulder. Vertical braces extend from top to bottom of both sections, strengthening them, and particularly the overlapping rim portion.

When the two sections are assembled to form a complete barrel, the flared, overhanging rim of the upper section fits over the upper band-protected rim of the lower section, and the shoulder within the rim fits upon the upper edge of the lower section. Bolts are then passed through apertures in the overlapping rim portions of the two sections and through the rigid band, which forms a firm support for the bolts and nuts on the inside of the barrel and holds the bolts in place. The rigid band not only provides a strong edge protected rim at the junction of the parts, but also a central rigid flat bearing surface on which the barrel may be rolled without bending or weakening it, and at the same time a sufficiently strong construction is provided to enable merely the substantially nonprojecting bolts to be employed as fastening means.

On the upper section is detachably secured a cover having a depending flange, which goes over the upper edge of the upper section. The flange is provided with strengthening beads at the top and bottom. On the interior of the flange of the cover are three vertical lugs extending downwardly beyond the lower bead and terminating in loops or eyes. Each eye fits between two similar eyes, carried by lugs on the upper section of the barrel. When the cover is in place a pin is passed through the three adjoining eyes and thus the cover and upper section are secured together. These eyes, when the cover is in place, are protected during the rolling or other handling of the barrel. The cover can be readily detached at any time and yet offers no undue exterior obstruction, such as would interfere with the nesting of the upper section with the cover attached within the lower section.

In Fig. 4 there is shown a modified form of attaching the cover, consisting of screw threaded lugs, secured to the inner edge of the upper section, which project through holes in the cover and have nuts on their outer ends. The cover fits loosely over the screws and the nuts clamp it in place.

In Fig. 5 a modification of the barrel is shown, in which an upper section provided with a lower beaded edge fits over the upper part of a lower barrel section. This lower section is provided with a collar, having a horizontal flange and vertical strengthening portions. The horizontal flange has bolt holes through which long vertical bolts pass, extending at their upper ends through lugs on the cover. The cover fits over the upper edge of the upper section of the barrel. Nuts are secured to the upper and lower ends of the bolts, which are usually four in number. In this form of barrel the horizontal flange on the collar at the upper edge of the lower section provides a sufficiently rigid bearing for the barrel when being rolled.

The barrel just described is particularly adapted to hold paste, paints, putty, &c. All of the barrels have the advantages that they protect their contents against dampness or moisture, are of relatively light weight, about 20 lb.; are stronger than wood barrels, seldom require repairs, and are easily repaired, because all parts are interchangeable, and are salable as scrap when their usefulness as barrels is over. The barrels can be made in any sizes and for a given capacity occupy assembled about 15 per cent. less space than wood barrels. Knocked down and nested for return they occupy very much less space than empty wood barrels. A very important advantage is that goods are much safer in transit when packed in these metal barrels and the railroads are more willing to take them. Less care is necessary in the handling and storing, any kind of a car can be used, and lower insurance rates can be obtained.

Fig. 4.—A Different Cover Fastening.

Fig. 5.—A Modified Form of the Wright Barrel Assembled and Unassembled.

The New England Foundrymen's Association held the first meeting after the outing season at the Exchange Club, Boston, September 9, with President Henry F. Arnold in the chair. Thomas D. West, Sharpsville, Pa., read a paper on "Criminal Waste of American Strength and Intelligence," and after dinner talked on "Special Features in Cupola Construction and Manipulation," both subjects being treated in a very interesting manner. The Whitin Foundry & Machine Company, Whitinsville, Mass., was elected to membership.

A recent report of the Associated Iron Molders of Scotland shows how seriously the depression in the shipbuilding and engineering trades in Great Britain is affecting foundry operations. Only 4576 members were at work, according to the report, while 2165 unemployed were on benefit, 191 were idle and not on benefit, and 530 were on superannuation benefit.

The American Sheet & Tin Plate Company has closed down its Sabraton tin plate plant, at Morgantown, W. Va., on account of the long drought. The plant contains 10 hot mills and has a weekly capacity of 10,000 boxes of tin plate.

The New Open Hearth Plant at Ohio Works, Carnegie Steel Company.

In the course of the first six months of 1909 the Carnegie Steel Company, at its Ohio Works, Youngstown, Ohio, will complete its new open hearth plant of 12 open hearth furnaces, with stock yards, gas producers and mixer. The plant will be situated between the present steel works and the Mahoning River. The stock yard, producer house, open hearth building and mold yard will lie parallel to each other and be of practically the same length. The mixer plant will be placed in line with the open hearth, but in a separate building. The stock yard will be 912 ft. in length, 60 ft. in width, roofed complete, and will be served by two 5-ton stocking cranes.

Between the stock house and the open hearth building will be the producer house, containing 53 producers, arranged in groups of four. Five of the producers installed in this building will furnish the gas for the new slabbing mill. Each group of four will be connected directly to an open hearth furnace by means of an underground flue. The producer building will be 820 ft. long, with a width of 41 ft. The side furthest from the open hearth furnaces is occupied by coal bins served by an elevated coal track; from these bins the coal is delivered to the various producers by means of a traveling hopper elevator, each producer being equipped with an overhead receiving hopper.

The mixer plant will be situated in line with the charging floor of the open hearth building. Its 250-ton hot metal reservoir will be carried on a roller cradle and tipped by means of a hydraulic cylinder. The building will have a frontage of 59 ft. and a depth of 51 ft. The 25-ton hot metal ladles coming from the blast furnaces on an elevated track will be received on a hydraulic elevator, and by this delivered at the level of the receiving spout of the mixer. The metal required for the open hearth will be poured into 42-ton charging ladles on another elevated track for delivery to the open hearth furnaces. The track arrangement is such that these ladles are delivered on the charging floor back of the charging machine and opposite any desired furnace, or, if it should be required, the 25-ton ladles may be run on through the mixer building directly on the track in front of the furnaces usually used for the charging buggies.

The open hearth plant proper consists of 12 60-ton furnaces, covered by a single building, 900 ft. in length and 139 ft. 6 in. in width. This width is divided into two parts, one 84 ft. 6 in., covering the charging floor and furnaces, and one 55 ft., covering the pouring floor. On the charging floor side will be placed two charging cranes of 75 tons capacity each, for handling the hot metal ladles, while the pouring side will be equipped with three 125-ton ladle cranes. Immediately over the pouring cranes, and running on an independent track carried by the roof trusses, will be placed a 20-ton trolley, to be used in making repairs on the pouring cranes. The charging floor, which is elevated 15 ft. above the level of the pouring floor, will be equipped with three low type electric charging machines, for handling boxes delivered on a track immediately in front of the furnaces. Just behind the charging machines, and under the craneway, is the track on which the 42-ton hot metal ladles will be delivered.

The furnaces will be of the stationary type and will have the usual gas and air regenerating chambers. The gas chambers will be 8 x 22 ft. and 14 ft. 9 in. in hight; the air chambers, which are situated inside, will be 12 x 22 ft. and 14 ft. 9 in. in hight. The furnace proper will have a width inside the walls of 14 ft. 11 in. and a length from port face to port face of 29 ft. The pouring spouts will be handled by electric jib cranes, these being also available for any work to be done in the cinder pits.

Immediately adjoining the pouring floor, and running the entire length of the open hearth building, is a yard for the handling of molds. This yard is served by a 10-ton electric overhead traveling crane of 60 ft. span.

Customs Decisions.

Beet Shredding Machines.

The Board of United States General Appraisers in overruling a protest filed by Downing, Judas & Co., Chicago, has laid down the rule that completed and finished steel parts apparently fitted for use as parts of beet shredding machines must stand duty under the terms of the tariff act at 45 per cent. ad valorem under the provision in the law for "manufactures of metal." The importers had set up the claim that the parts should be admitted to entry as articles manufactured from steel, with a tax of 4 7-10 cents per pound, as "steel in all forms and shapes." General Appraiser Fischer, in his decision for the board, says that the articles are so far completed that they are dutiable as assessed, and for this reason the decision of the collecter in levying the higher duty is allowed to stand.

Railroad Switches.

In overruling a claim made by L. H. Abenheimer against the collector of customs at San Francisco, the board has decided that railroad switches manufactured in part of steel rails and other metal must pay duty at the rate of 45 per cent. under the metal provision of the tariff act. It was the contention of the importer that the switches should be granted entry at 7-20 of 1 cent per pound as being rails or railroad iron. The board reaches the conclusion that the switches are dutiable at 45 per cent. as assessed, owing to the circumstance that the switches are made only in part of rails.

Bowie Knives.

A decision has been handed down by the lower customs tribunal unfavorable to the contention of Downing, Judas & Co., Chicago, regarding the classification for dutiable purposes of bowie knives. They were assessed for duty at 45 per cent. under the tariff provision for hunting knives, and were alleged to be entitled to duty at 35 per cent. as "sidearms." In overruling the claim, General Appraiser Fischer says that an inspection of the samples shows that the articles in question are in fact bowie knives with deerfoot handles. Notwithstanding the fact that they were invoiced as "daggers," they do not answer that description according to the board. They are therefore held dutiable as assessed.

Cast Steel Sheets and Steel Strips.

The Board of Appraisers has taken favorable action on protests filed by Wetherell Bros., Boston. It is held that certain cast steel sheets are not subject to an additional duty. The imposition of the extra duty is declared to be illegal. The board also found that no additional duty accrues on cold rolled strip steel imported by the same firm.

The North-Eastern Steel Company, Middlesbrough, England, has secured the order for 15,000 tons of 45-lb. steel rails for the Western Australian Railways, about which there has been some controversy with the International Rail Association. The business had been allotted to Belgium, it is reported, but the directors of the railroad refused to have Belgian rails, and ultimately the contract was given to the Middlesbrough Company at a higher price. The Belgian bid was £5 16s. a ton c.i.f., while the price paid is said to be £6 6s. c.i.f., or £5 11s. at mill, making a difference of over $37,000.

The International Harvester Company's exports for the quarter ended August 31 are stated to have about equaled those for the company's record season for the same quarter last year. In May and June of this year the carload shipments for export fell slightly below the same months in 1907, but for July and August the figures are far in advance of last year. At the present ratio of increase the company will soon be running ahead of its export showing last year.

The H. K. Porter Company, Pittsburgh, has been awarded a contract by the Isthmian Canal Commission for furnishing 10 locomotives at $5945 each. They are to be used at the rock crushing plant at Porto Bello.

The Insley Controllable Center Dump Buckets.

The Insley Iron Works, Indianapolis, Ind., is manufacturing two new types of center dump and controllable buckets, illustrations of which appear herewith. These have been developed to meet the demand for a drop bottom concrete bucket that will discharge its contents in a positive straight line from the center, placing it exactly where required; that will empty itself instantaneously; that is self-locking and self-closing upon the release of the operating handle, and at the same time one in which

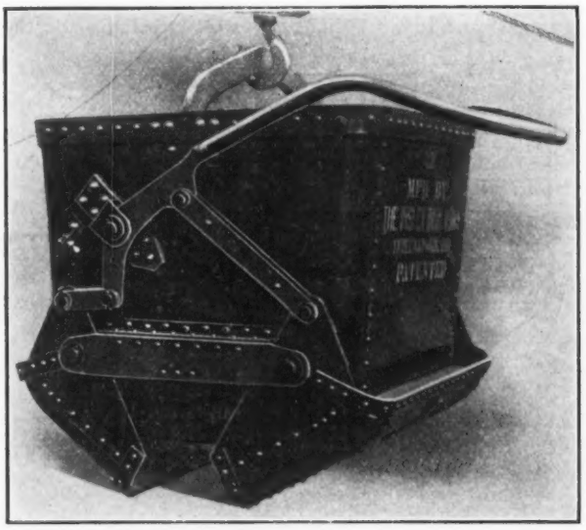


Fig. 1.—The Pier Type of Bucket for Depositing Concrete in a Mass.

the discharge is partially or entirely under the control of the operator. And it has been necessary that this end be reached without a cumbersome and expensive mechanism, so that the bucket, while strongly built, will be light in weight, simple in construction and can be placed on the market, therefore, at a price fairly competitive

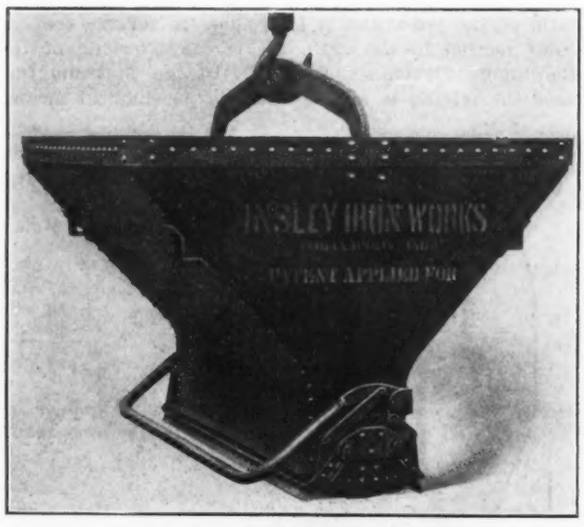


Fig. 2.—The Form Type of Bucket for Depositing Concrete Into Forms or Restricted Spaces.

with that asked for the ordinary types of drop bottom buckets. By the latter are meant those which are hinged on one side and latched on the other, and which cannot be operated without slopping and side splashing, and without extra strength in the forms to stand the impact of the entire discharge, because this is beyond control as soon as the latch is thrown.

The new buckets are built of steel throughout, and all parts subject to severe wear are bronze bushed. They are designed in two general types, the pier bucket, Fig. 1, and the form bucket, Fig. 2. Both are made in sizes of from ½ to 3 yards, the ratings being liberal, so that concrete in place will govern. On both types the bottom is pivoted to the sides in two jaws or bi-valves, opened simultaneously by a system of links and levers, this action depositing the contents in a positive straight line from the middle of the bucket. The system of levers operating this bi-valve bottom is so designed and the points of pivoting have been so chosen that the bottom is self-sustaining in any or all positions between no opening and full opening. The size of the opening can be varied and maintained at the will of the operator, and the bucket can be partially or entirely closed with ease from full flow at any stage of the deposit.

The pier bucket is intended for work where a strong center dump bucket is required which will drop the concrete exactly in place, will empty itself instantaneously, and is self-closing and self-locking, but on work in which the item of control is a minor requirement. The stream from this bucket can be regulated and can be entirely cut off with some materials. Where positive control is required the form bucket is recommended and is guaranteed to meet every requirement for the most exacting work on walls, floor slabs, columns, or other restricted spaces. The contents of this bucket can be deposited within any narrow wall form. The form bucket fitted with hinged lids is especially serviceable for submarine construction, the movement of the jaws being such that the bucket can be placed practically in contact with the forms before the bucket is opened, allowing the concrete to be deposited with a minimum amount of washing.

The self-locking device on these buckets and all other distinctive features are covered by patents and patents pending. The buckets are sold by George M. Chandler, general sales agent, 9 North Illinois street, Indianapolis, Ind.

An American Exhibition in London.—Announcement is made of an exhibition of American products which is to be held at Earl's Court, London, from May to October, 1909, to be known as the Golden West and American Industries Exhibition. For this purpose a committee has been organized which is headed by the Lord Mayor of London. Representatives have been appointed to visit the leading cities and manufacturing districts of this country, the commissioner in charge of this work being John W. Ryckman, who has established temporary headquarters at the Ansonia, Broadway and Seventy-third street, New York City. The mayors of 50 cities have been invited to appoint local committees to take the matter up in their respective communities. The Governors of all the Western States have been asked to lay the subject of the exhibition before their chambers of commerce and other commercial bodies with favorable recommendation. Manufacturers' associations have also been requested to participate in the exhibition through their members. The exhibition will typify the great development of the States of the Golden West since the discovery of gold in California in 1849, and will also commemorate the semicentennial of the completion of the first Atlantic cable. The Earl's Court exhibition buildings and grounds cover an area of more than 22 acres and furnish all that is essential for the holding of important exhibitions. The buildings have been specially constructed for exhibition purposes, and the American exhibition will be the twentieth of the series of great annual exhibitions held there.

Two huge battleships were launched in British shipyards September 10. One was the St. Vincent, the largest and heaviest of British warships, launched from the Government yards. Its dimensions are as follows: Length, 500 ft.; beam, 84 ft.; draft, 27 ft.; displacement, 19,250 tons. The engines will be of 24,500 hp., and it is expected to have a speed of 21 knots. It will be armed with 10 12-in. guns and a secondary battery of 4-in. guns. The other vessel was the Brazilian battleship Minas Geraes, launched from the yards of Sir W. G. Armstrong & Whitworth, at Elswick, on the Tyne, a bigger and more powerful ship than the St. Vincent. It has a tonnage of 21,000 and is 530 ft. in length, though it draws 25 ft. instead of 27. In armament it is superior to the St. Vincent, as it has 12 instead of 10 12-in. guns, and can bring all of them to bear in either broadside. The St. Vincent can bring only eight to bear. The secondary armament consists of 22 4.7-in. guns.

The Roechling-Rodenhauser Electric Furnace.

Dr. B. Neuman of Dramstadt, Germany, has published in *Stahl und Eisen*, Nos. 33 and 34, 1908, the results of a study of the new Roechling-Rodenhauser electric furnace at the Roechling Works at Voelklingen, which was designed in order to use the three-phase alternating current with its cheaper electric plant, and with the possibility of its use by taking the current from the usual central station.

The new furnace is shown in the accompanying engravings, Figs. 1 and 2, which represent a 1½-ton furnace for 50 cycles. The working hearth A seems narrow, but in reality is 1.65 ft. wide and over 4.5 ft. long. It is accessible through three working doors, located between adjoining legs of the transformer. The latter are connected by a horseshoe yoke, and each is encircled by the channels R, which are shorter than they are in the ordinary induction furnace and permit of an enlargement of the hearth proper. At the point where two such channels enter the working hearth, there are imbedded in the wall the characteristic Roechling-Rodenhauser pole plates, between which and the bath there is a refractory material which is a good conductor at high temperatures and transmits the current to the metal bath. The bath is heated both by induction in the channels and by direct resistance heating of these pole plates. Each of the three legs, as is seen in the drawings is surrounded by the primary coil, above which there is also a secondary coil. While one terminal of the latter is connected to N, the other terminal is connected through broad copper bars with the pole plates. The coils are completely incased so that they are inaccessible during the operation. They are cooled by a moderate current of blast. Scrap or liquid metal is charged or slag withdrawn by either of the two rear doors, while lime and other additions may be made by any of the three doors. The furnace is tapped by tilting. The furnace lining is put in rapidly with the aid of pneumatic stampers. The bottom wears slowly and is used for a number of campaigns. The stamping up of the side walls takes about 8 hr.

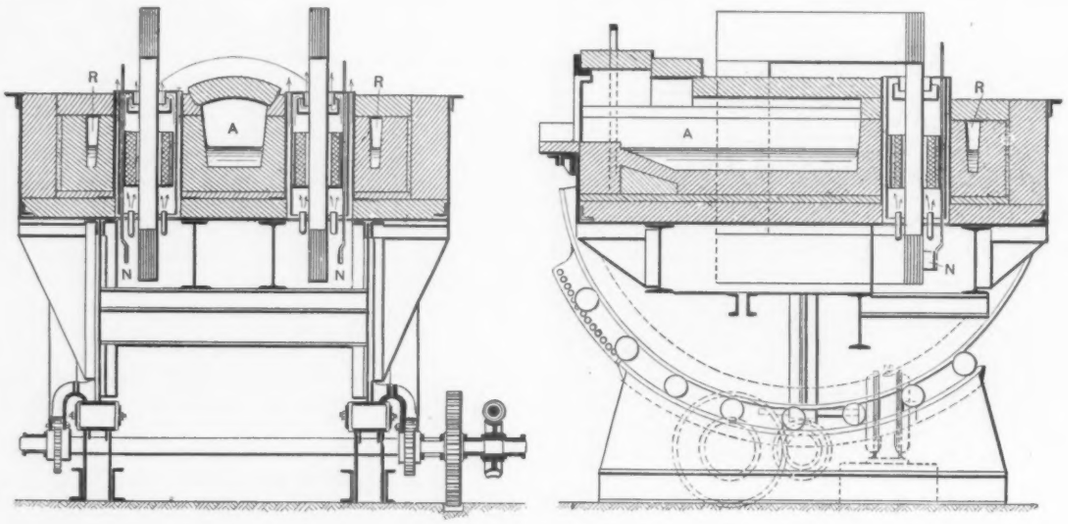


Fig. 1.—Transverse and Longitudinal Sections of the Roechling-Rodenhauser Electric Furnace.

The Operation.

The heating up with rings requires only 4 hr., after which liquid charges may be made. At Voelklingen pig iron is used for the first charge in order to bring up the furnace to full heat, which is accomplished in 4 hr. From the time that the current is turned on until the furnace is ready for working, therefore, requires 8 hr. This heating period requires a consumption of current of 2000 kilowatt-hours for the 3½-ton furnace and 1500 kilowatt-hours for the 1½-ton furnace. After the furnace has been heated it is charged with basic Bessemer steel which has been blown in the converter. Calcined lime and roll cinder, or ore, are charged upon the bath, and this dephosphorizing cinder is drawn off in about an hour. When carbon steel is to be made, the proper addition of carbon is made in accordance with the specification called for for the product. By additions of lime a second slag is formed, whose object is to desulphurize, and under which the charge is allowed to rest until flaming stops; in other words, until gas has been entirely expelled from the bath. The second slag is completely white—*i. e.*, free from iron, and it disintegrates to a fine white powder in the air. The bath is deoxidized by the addition of ferrosilicon when the second slag is charged. When carbon steel is being made the charge is tapped and cast. When alloy steel is being made the proper additions are first made. In consequence of the active circulation in the bath the alloy is so uniform within a few minutes that the heat may be tapped.

A curious phenomenon in the alternating current furnace is the rapid rotation of its contents. This circulation is not accidental, but is the result of the horseshoe form of the yoke, and it is possible to reverse the circular motion in the bath. It is characteristic of the Roechling-Rodenhauser furnace. In the Stassano furnace the mixing is accomplished by mechanical means, while in the other carbon electrode furnaces it takes place only slowly, because the hottest and, therefore, lightest metal is on top. Much importance is attached to this feature as promoting the metallurgical processes.

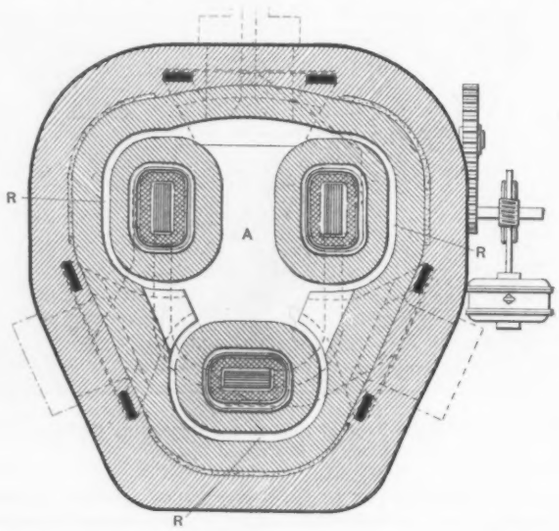


Fig. 2.—Horizontal Section of the Roechling-Rodenhauser Electric Furnace.

The reproach has been made to induction furnaces that the slag does not become hot enough because it receives its heat from the bath of iron. Practice at

Voelklingen shows that both the first highly basic dephosphorizing slag and the second deoxidizing and desulphurizing slag are very liquid and hot. This is shown by the fact that in tapping the charge a considerable quantity of the slag flows into the ladle, and that this slag after casting the whole heat flows out of the ladle freely. The explanation of the fact that the slag in the furnace does not seem as hot as that in the arc furnace is probably that slag is only heated from below in the induction furnace. Since the metallurgical processes proceed normally and rapidly when the slag is thus heated this is no disadvantage; on the contrary, the roof is thus protected against excessive heat in this manner.

Uniformity of Metal.

A series of tests was carried out at Voelklingen by the Poldi Huette of Kladno, Bohemia, on alloy steels, with the object of testing the uniformity of the metal. At 2 p.m. a heat was charged. From 5.17 to 5.19, 20 kg. of 65 per cent. ferrochrome was added in pieces, well distributed. At 5.24 the bath was well stirred. From 5.29 to 5.35 samples 1 to 7 were taken at the points in the furnaces indicated in the accompanying sketch, Fig. 3, the analysis yielding the following results:

	Carbon.	Mang.	Sil.	Phos.	Sulp.	Chrome.
1	0.81	0.27	0.335	0.031	0.007	1.00 1.01
2	0.77	0.25	0.340	0.030	0.008	1.00 1.01
3	0.85	0.28	0.345	0.029	0.007	0.99 1.01
4	0.82	0.27	0.335	0.030	0.009	0.98 0.99
5	0.83	0.25	0.335	0.030	0.009	0.99 0.96
6	0.78	0.27	0.419	0.031	0.010	0.99 0.99
7	0.79	0.28	0.326	0.030	0.009	0.98 0.98
8	0.77	0.29	0.396	0.031	0.009	0.99 1.00

Analysis No. 8 is from a sample taken from the ladle after the furnace had been emptied at 6.12 p.m., 35 min. after the steel had been allowed to stand in the furnace. It will be observed that the metal was very uniform in the furnace.

Steel Castings.

It is claimed that the induction furnace is superior to the carbon electrode furnace for melting and working scrap, because there are no shocks or violent fluctuations in the current. This was shown when the Aciéries Liégeoises of Brassoux-lez-Liége, Belgium, who have since acquired a license and have built a furnace, carried out charges at Voelklingen by their own engineers. Old material was used in the charge, and the steel was cast into thin castings for automobile construction with eminent success.

Rail Steel.

The Roechling Works have been the pioneers in refining basic Bessemer steel for the manufacture of steel rails. They have delivered 1000 tons to the Prussian State railroads, and have orders for other German and foreign roads. The steel blown in the basic Bessemer is subjected in the electric furnace to a brief refining operation and has time to discharge its gas, producing a more homogeneous and denser material. The author quotes the following drop test of an electric steel rail: The distance between bearings was 1 m. (39.37 in.). The weight of the drop was 800 kg. (1764 lb.) and the hight 1.875 m. (73.71 in.). The first blow led to a set of 16 mm. (0.63 in.), the second to 30 mm. (1.18 in.), the third to 51 mm. (2 in.), the fourth to 61 mm. (2.4 in.), the fifth to 71 mm. (2.8 in.) and the sixth to 80 mm. (3.15 in.). Then followed a blow with 6000-m.-kg. (43,410 ft.-lb.), which caused a set of 136 mm. (5.35 in.). A second blow broke the rail.

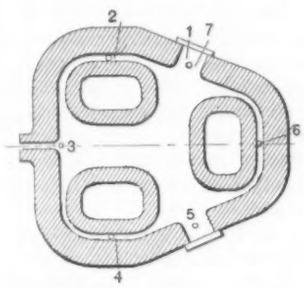


Fig. 3.—Points in the Electric Furnace from Which Samples Were Taken for Analysis.

Chemical Results and Physical Tests.

Dr. Neuman quotes the following series of analyses and physical tests to show that there is little difficulty in producing a high quality of metal, equivalent to the better grades of open hearth and crucible steel:

No.	Phos. Per cent. Material	Sul. Per cent. charged.	Car.	Mang.	Sili.	Phos.	Sul.	Chrome.	Nickel.	Tensile strength. Kg.	Elongation. Per ct.	Construction. Per ct.
						Steel,	charging	liquid	metal.			
1	0.050	0.081	0.080	0.305	0.068	tr.	0.016	...	...	32.8	38.25	74.4
2	0.127	0.069	0.068	0.275	0.032	tr.	0.024	...	...	33.3	36.0	76.2
3	0.058	0.073	0.074	0.334	0.030	tr.	0.040	...	...	34.4	40.0	73.6
4	0.085	0.085	0.084	0.317	0.027	0.006	0.040	...	...	35.8	40.0	73.2
5	0.069	0.057	0.099	0.542	0.31	tr.	0.032	...	...	43.8	34.0	55.7
6	0.075	0.073	0.154	0.346	0.26	0.015	0.032	...	...	46.1	31.5	63.2
7	0.051	....	0.194	0.420	0.55	0.020	0.024	...	...	51.1	27.5	45.6
8	0.086	0.121	0.590	0.375	0.10	0.028	0.016	...	...	65.0	24.0	39.6
9	0.072	0.073	0.440	0.738	0.30	0.024	0.024	...	...	70.0	23.0	43.8
10	0.066	0.105	0.458	0.702	0.151	0.005	0.032	...	...	72.4	20.25	50.4
11	0.025	0.097	0.718	0.376	0.29	0.018	0.020	...	...	89.8	13.5	15.5
12	0.066	0.113	0.762	0.672	0.17	0.021	0.024	...	...	92.6	15.0	19.7
13	0.045	0.065	0.835	0.321	0.29	0.015	0.028	...	...	96.8	12.5	17.8
14	0.050	0.089	0.876	0.318	0.41	0.018	0.016	...	...	102.7	6.0	10.3
15	0.069	0.121	0.919	0.261	0.25	0.011	0.028	...	...	...	...	...
16	0.073	0.105	0.990	0.435	0.029	0.023	0.032	...	...	...	...	...
17	0.055	0.113	1.170	0.261	0.34	0.024	tr.	...	...	...	...	...
18	0.026	0.105	1.260	0.350	0.19	0 015	0.030	...	...	...	...	...
19	0.064	0.081	1.420	0.377	0.19	0.022	tr.	...	...	...	...	...
						Steel,	charging	scrap.				
20	0.045	0.089	0.244	0.493	0.20	0.024	0.032	...	...	...	...	...
21	....	....	0.715	0.607	0.33	0 011	0.024	...	...	...	...	...
						Alloy	charges					
22	0.060	0.081	0.212	0.505	0.26	0.016	0.028	0.74	2.98	95.6	12.5	23.5
23	0.074	....	1.170	0.320	0.30	0.022	0.016	1.60	...	...	...	...
24	0.069	0.078	0.080	0.253	0.14	0.015	0.032	0.81	4.03	62.5	17.5	46.4
25	0.081	....	0.750	0.283	0.41	0.022	0.016	1.05	...	...	...	...
						Steel	castings	charges.				
26	0.043	0.121	0.356	0.841	0.25	0.040	0.028	...	...	...	...	...
27	0.056	0.097	0.337	0.405	0.10	0.019	0.019	...	...	...	...	...
						Silicon	charges.					
28	0.021	0.081	0.076	0.467	4.05	0.014	tr.	...	...	...	...	...

Wedding has dealt with the consumption of power with liquid charges. In making the metal equal to open hearth and crucible steel, referred to in the table of analyses, requires from 200 to 300 kilowatt-hours for heats of 2 to 3 hr.

Making Steel Castings.

The following data are submitted for the manufacture of steel castings in the Roechling-Rodenhauser Furnace at Voelklingen: The furnace has a capacity of 1.5 tons, and during the heat requires 200 to 230 kw. The melting of the scrap proceeds rapidly, charging being done through the three doors, so that with the current supply indicated the furnace takes care of 0.4 to 0.5 ton per hour. When about 0.7 ton scrap has been melted the charge is refined, and this calls for about 200 to 300 kilowatt-hours. In this manner 0.7 ton of steel is made in 3 to 3½ hr. In tapping about 0.4 ton is left in the furnace in order to start the next heat.

An exact view of the course of the scrap heats is given in the accompanying diagrams, Fig. 4, which cover three consecutive heats. The diagram shows plainly that even in working with solid additions no shocks occur. The first and third heats are almost ideal. The steel was used for castings. It was so hot that the thin, long and complicated castings could be readily made. The consumption of power in melting scrap was about 900 kilowatt-hours.

The author goes into somewhat elaborate estimates of cost in making steel castings, which are based on conditions in Germany. The following data are of more general interest. Working day and night, and making repairs on Sundays, the 1½-ton furnace at Voelklingen has a capacity of 1421 metric tons per annum. Stopping the furnace for 3 hr. every night the make would be 1218 tons. Two men per shift serve the furnace. The lining of the furnace requires 3 tons of magnesite mixed with 12 per cent. of tar and one-half of the material is used over again. Four men work 6 hr. to renew a lining. The motor for operating the blower for cooling takes about 1.85 kw. The author figures out that the cost per metric ton of steel in the ladle running day and night is 123.14 marks ($29.31), and running with a stoppage of 3 hr. every night, 127.02 marks ($30.23).

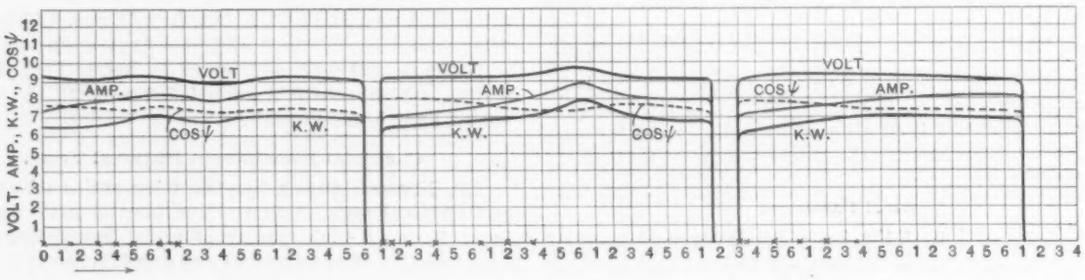


Fig. 4.—Diagrams Showing the Course of the Scrap Heats in Three Successive Heats.

Quality in Electric Refining.

The metallurgical methods made possible by electric heating permit of a refining of the steel which was hitherto only known in the crucible furnace. It permits of much higher temperatures, which in turn aid the elimination of impurities and the removal of gases. It is a fact that electric steel, even under otherwise identical conditions, shows a superiority over open hearth and crucible steel, which is particularly noticeable under drop tests. This superiority is undoubtedly due to its extraordinary homogeneity. Since almost exactly the same results have been attained in different furnace systems, it cannot be attributed to any single one, but must be regarded as the result of a special refining process, which can only be carried out in the electric furnace.

In all the processes the dephosphorizing is effected in the same manner by a lime cinder. It is an accepted fact that by a prolonged reaction and by repeated removal of the cinder larger percentages of phosphorus may be removed down to any required limit.

The extraordinary completeness of the removal of oxygen from the bath of steel is one of the most important advantages of the electric refining process. It is true that for complete deoxidation a cinder completely free from iron is necessary. In the different processes the deoxidation is accomplished in a somewhat different manner. In the Héroult process there is charged, after drawing off the phosphorus slag, a certain quantity of carbon and of fresh lime. Under the influence of the electric arc calcium carbide is formed, so that carbon is the deoxidizer. In the Roechling-Rodenhauser process, after withdrawing the ferruginous slag, fresh lime is charged, and the deoxidizing is done with ferrosilicon.

It has been proved that electric refining permits of desulphurizing easily and accurately to a point unknown in other metallurgical methods.

In making high carbon steel with the Roechling-Rodenhauser method the carbonizing is done immediately after removal of the phosphorus slag and before desulphurizing. In the Héroult process the finished steel is carbonized.

The Position of the Electric Furnace.

Dr. Neumann takes the ground that the electric furnace cannot be directly compared with the open hearth and the crucible. It does not imitate any metallurgical method, but, on account of its higher temperatures, introduces a special and far more effective process of refining. The fact that the Roechling plant is making rail steel does not justify the conclusion that merchant steel is being made of the same quality and at the same cost as in the open hearth furnace, but there is being made in the electric furnace merchant steel of a higher quality, but, of course, at somewhat increased cost. But when the point has been reached that a higher quality can be made at a moderate increase in cost, then higher quality will be specified, for it is clear that if rails, tires, axles, &c., offering greater safety against breakage and wear can be made, even at a higher price, then there is still a considerable advantage to the consumer. The conclusion is justified that the number of electrical furnaces which refine ordinary steel will multiply considerably.

The plans for the utilization of electrical furnaces at steel works go even beyond that. The Dommeldingen Works propose to make steel castings and high quality steel by using pig iron direct from the furnace. Generally speaking, the opinion prevails that the usual degree of refining may be more cheaply carried out in the converter or in the open hearth furnace than in the electric furnace. It seems that in this specific case the quantity of steel to be made does not justify the construction of a basic Bessemer plant. After studying the Roechling-Rodenhauser process it has been decided to build several furnaces and to refine the basic pig direct from the blast furnace in two electric furnaces in series.

Plans are under way for the construction of a steel casting plant at Cumberland, Md., a site for which has been donated by Frederick Merton. Prominently connected with the enterprise is Daniel Williams of South Cumberland, who has had 15 years' experience in making all grades of open hearth steel by both the acid and basic processes, and who for the past two years has been in charge of the open hearth plant of the N. & G. Taylor Company, Philadelphia, Pa. If the plant is erected it will be operated under the management of Mr. Williams.

The Northern Electrical Mfg. Company, Madison, Wis., states that Northern motors are used for driving the electrically operated valves referred to in the article on "The Water Supply of the City of Pittsburgh," in *The Iron Age* of September 3.

The New Federal Trademark Law.

WASHINGTON, D. C., September 15, 1908.—The rapid development of the Federal trademark system under the Bonynge act, which went into force April 1, 1905, is graphically shown by statistics compiled for the forthcoming annual report of the Commissioner of Patents. Such efficiency has the system shown under the new law that in the three years and a quarter since its enactment one-half as many applications for registration have been made as were filed in the preceding 35 years, which embrace the entire period covered by Federal trademark statutes. The unparalleled prosperity of the country since the Bonynge act was passed is also reflected in these remarkable figures.

Record Under the Bonynge Act.

This act became effective April 1, 1905, and in the remaining three months of the fiscal year, which ended June 30, 1905, no less than 9710 applications for registration were made thereunder. In the following fiscal year ending June 30, 1906, 10,888 applications were filed. In 1907 the filings amounted to 7918, while in the fiscal year just closed the number was 7400, making a grand total under the Bonynge act of 35,916 applications.

The high percentage of registrations under the new law is significant of the care shown by manufacturers in selecting appropriate registrable marks for the protection of their products. No registrations under the new act were made in the first three months in which it was in force because of the requirement of public notice prior to allowance. In the fiscal year 1906, 10,408 marks were registered and in 1907, 8838. In the year just closed the number was 6141, making a total of 25,387 registrations under the Bonynge act. There remained, therefore, on July 1, 1908, 10,529 applications either rejected or pending, the majority being of the latter class. Comparison with the operations of the Trademark Division under former laws emphasizes the surprising record made under the Bonynge act. In the 24 years from 1881 to 1906 only 60,000 applications were received, or approximately 2500 per annum, of which 36,166 were allowed registration, or approximately 60 per cent. From the passage of the original Trademark Act of 1870 to its repeal by the act of 1881, approximately, 12,000 applications were filed, of which about 8000 were allowed registration, or an average of a little more than 1000 applications and 700 registrations per annum.

From this comparison it appears that since the Bonynge act took effect the applications have averaged nearly 11,000 per annum and the registrations nearly 8000, while during the life of prior trademark statutes the applications averaged but 2000 and the registrations only about 1250 per annum.

Many Marks Reregistered.

The decline in the annual total of applications since 1906 was fully anticipated and is due to the fact that soon after the law went into force it was construed to require the re-registration of old marks previously registered for foreign commerce in order to protect their use in interstate commerce under Federal jurisdiction, for it will be remembered that the act of 1881 repealed by the Bonynge law was held by the courts to apply only to marks used in foreign commerce and in commerce with the Indian tribes. The direct result of the ruling regarding the re-registration of old marks is seen in the phenomenal total of 20,598 applications filed in the first 15 months in which the law was in force, as compared with 7918 in the second year under the Bonynge act. It is probable that the annual applications for registration have now reached a minimum, and that hereafter there will be a slower but steady increase both in applications and registrations.

The supplemental law known as the Currier act, which took effect July 1, 1906, and which was intended to perfect the Bonynge act, has operated to reduce the total number of applications and registrations, as it provided for a detailed classification of trademarks and for the protection of an entire class by a single registration. Before the Currier law was enacted there were thousands of manufacturers making a variety of goods who were prevented from registering their trademarks under the Federal law because of the prohibitory cost.

Minor Amendments Needed.

A strong effort will be made at the coming session of Congress to secure the enactment of a bill introduced at the last session by Senator Smoot of Utah, passed by the Senate and favorably reported by the House Committee on Patents. This bill modifies the existing law in two particulars: First, it obviates the necessity on the part of the applicant for registration either to ascertain or to allege that no one has the right to use the proposed mark in a foreign country, and second, it permits an applicant to present a written description of his trademark, as well as a facsimile thereof, if it is thought to be advisable.

Concerning the first amendment, inasmuch as use in this country is controlling in determining who was the first to adopt and use a trademark, it does not appear to be necessary for an applicant for registration to allege in the declaration that no other person has the right to use the mark, inasmuch as the foreign use of a mark does not inhibit registration in this country. It appears to be sufficient for the applicant merely to allege that no other person, firm, corporation, or association has the right to use the trademark in the United States.

As to the second point, it should be understood that under the present act there can be no description of the mark unless color forms a material feature thereof. It is found in many cases that the drawing does not convey an adequate understanding of the mark itself, and it is therefore desirable that some brief description be permitted. Applicants often desire to present a description, inasmuch as their drawings are always restricted to the showing of the mark as it appears on the goods themselves or the packages containing the goods. They are of the opinion that the description of the mark will give them a broader protection than a mere showing of the mark. This may be particularly true in cases where the mark sought to be registered is a word-mark. In such cases there is a possibility of the mark being restricted to the particular form shown, whereas the applicant seeks protection for the word in any form in which it may be used, and if he be permitted to describe the mark as consisting of this word broadly this restriction could not possibly occur. It is believed that if a description of the mark is permitted in certain cases the public will be given greater information as to the mark registered and possibly applicants may acquire broader protection.

W. L. C.

With the final dividend of 25 per cent. and interest at 6 per cent. being paid to creditors of the National Bank of North America, and 90 per cent. dividends already distributed among depositors of the New Amsterdam National, all of the 15 New York banking institutions that suspended during the financial troubles of last year have been put on their feet again or have been successfully liquidated through other corporations. The Oriental Bank and the International Trust Company are in process of liquidation. These and the National Bank of North America and the New Amsterdam are the only ones that have not resumed business.

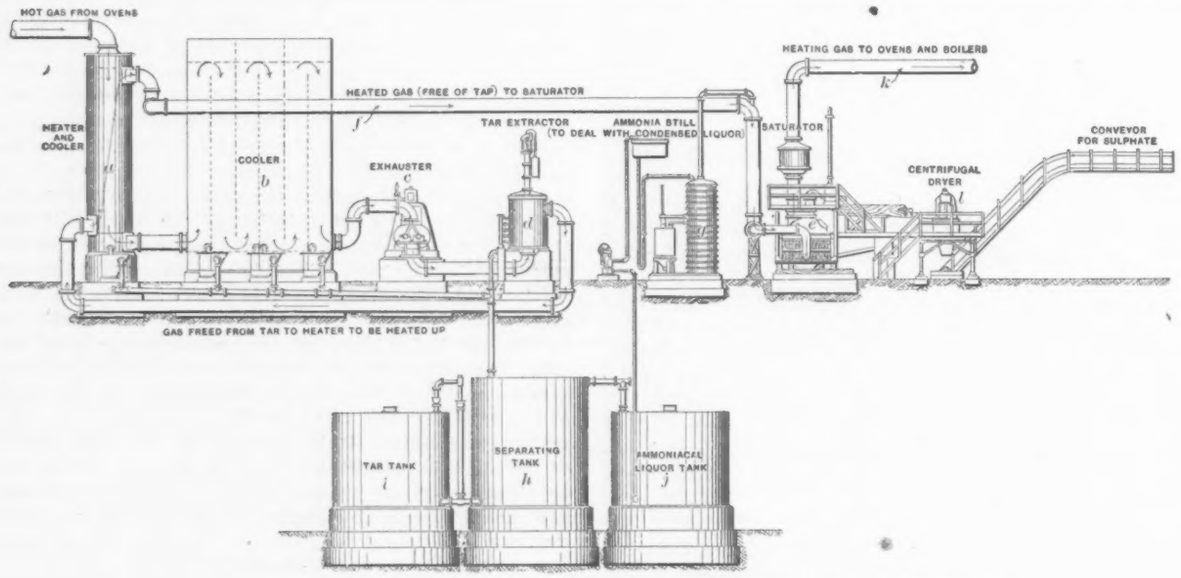
The Bondholders' Protective Committee of the Sheffield Coal & Iron Company announces that since certain large shareholders have not subscribed to the reorganization plan, the committee has decided to foreclose the mortgage on the property. The original plan proposed raising $500,000 to avoid foreclosures of the mortgage, in addition to a large sum for founding arrangements. The committee is considering a modified plan which will be submitted to the bondholders.

In 1907 the iron ore mines of Luxemburg produced 7,492,870 metric tons of ore, against 7,229,385 tons in 1906. The production of pig iron in 1907 was 1,484,872 tons, of which 107,065 tons was forge, 1,276,373 tons was basic Bessemer, and 101,434 tons was foundry iron. In 1906 the production was 1,460,105 tons. The three steel plants in Luxemburg consumed 613,482 tons of pig iron in 1907, against 581,192 tons in 1906.

The Koppers Improved Ammonia Recovery Plant.

The Koppers system of by-product coke ovens, which was fully described in *The Iron Age* of December 12, 1907, pages 1671-1675, has been improved in several particulars in the past year. One departure the inventor has made is the erection of inclined ovens, the only difference between these and the usual Koppers oven being that the former are built at an inclination and provide better facilities for inspection and regulation. A battery of the inclined ovens is now under construction at the Bochum Gas Works in Germany, and another battery at the gas works in Vienna, Austria. The inclined retorts permit of a considerable saving in connection with charging the coal and pushing out the coke.

Another improvement, which is shown in the accompanying illustration, is in the ammonia recovery plant. The gases are passed through an acid bath, and the use of water for scrubbing purposes is dispensed with. The new method is described as follows, in a paper by A. Peters, Cologne, Germany, read before the Rhineland and Westphalian Gas Association. It has not been installed as yet at the Joliet, Ill., plant of Koppers ovens, erected for the Illinois Steel Company, but little change will be necessary in order to substitute the new process if the observed results at European plants using the acid process commend it to the company's engineers:



The Koppers By-Product Plant for the Recovery of Ammonia Direct from Coke Oven Gases.

The usual process for purification of the gases consists of subjecting them, first of all, to a cooling operation, and then passing them through washers for the extraction of ammonia. The gas upon leaving the ovens passes through air and water coolers, in which the larger portion of the tar and a portion of the gas liquor condense. It is then drawn by an exhauster, by which it is forced through tar extractors and ammonia washers. The ammonia washers are designed on several systems, some being of a revolving description, while others are stationary and are not mechanically operated. The principle upon which they all work, however, is the same—viz., that the washing liquor passes through the washers in the direction opposite to the gas, so that the enriched liquor comes into contact with the gas rich in ammonia, and the weak liquor acts upon the gas when freed of most of its ammonia. It is necessary in order to obtain efficient washing for the washing liquor to be of a soft nature and quite cool.

Previous Efforts to Dispense with Scrubbing.

The difficulty of constructing water tight tanks and keeping them tight, and also the difficulty experienced in disposing of the effluent from sulphate works have led to efforts to dispense with the washing of the gases with water, and a system was brought out some years ago, the object of which was to bring the gas into direct contact with sulphuric acid, in order to extract the ammonia without the scrubbing operation being necessary. This system only required a small collecting tank for the tar extracted in the hydraulic main, which was constructed of iron. Dispensing with the necessity for the employment of water for scrubbing (the provision of which at collieries in sufficient quantity, and at a sufficiently low temperature, frequently was a matter of difficulty), appeared to be a great advantage. The system consisted in conveying the hot gases, having a temperature from 130 to 160 degrees C., in pipes carefully coated with non-conducting material and forcing the gas by means of an exhauster direct into a sulphuric acid bath. The tar separated out and floated on the surface of the acid, from whence it was skimmed or drawn off. The gas not having been subjected to a cooling operation, there were no products of condensation. As a consequence, the sulphate produced was contaminated with tarry matters which spoiled its appearance and deteriorated its quality. The tar itself was detrimentally affected, and was of an acid nature, it being necessary, in order to render it marketable, to purify it with hot water and to neutralize the acid with alkalies. It was also found that the saving in labor which was expected to be derived by the system was not realized owing to great cost involved in producing and treating the sulphate. In order to extract the tar from the hot gas, to overcome the difficulties referred to the gases were passed through centrifugal extractors. These machines, almost without exception, possess the drawback that they extract only the constituents boiling at a high temperature, and as a result a product of a pitchy nature is produced instead of tar.

The Koppers System.

The new system of Koppers is designed on the same principle, but the gases are freed from tar before they are passed into the sulphuric acid bath. The gas is first of all cooled in order that the tar and gas liquor may condense. It is then passed through the tar extractor to take out the last traces of tar. After passing through the tar extractors the gas is led back to the preliminary gas cooler, which is arranged as a heat exchanger, and which heats up the gas to about 80 degrees C. by the hot gases coming from the ovens. The gas heated up in this way and freed of tar is then conducted to the saturator, where the ammonia is extracted from the gas and recovered direct in the form of sulphate.

In the illustration a diagrammatical representation of the system will be seen. The hot gases of distillation pass first of all into what is called a heat exchanger *a*, and thence are conducted into water coolers, *b*, by which the temperature is reduced to the degree which is necessary for the extraction of tar. As in the ordinary system, the gas, after cooling, is drawn by exhausters, *c*,

and forced through the tar extractors, *d*. After leaving the extractors the gas is conducted to the heat exchanger *a*, where it becomes heated up and at the same time cools down the hot gas as it comes from the ovens. The heated gas is then taken direct to a saturator, *e*, where it comes in direct contact with sulphuric acid. Here the ammonia is extracted and is recovered in the form of ammonium sulphate. The gas after being freed from ammonia passes out of the saturator by the main *k*, by which it is conducted back to the ovens without necessitating any further cooling process, as is necessary where the ordinary system is employed. In the preliminary cooling process a large portion of the tar and of the gas liquor is condensed out of the gas. These products of condensation are conducted to the separating tank *h*, from which the tar overflows into the tar storage tank *i*, and the ammoniacal liquor passes into the storage tank *j*. The ammoniacal liquor is delivered to a distilling apparatus, *g*, where the ammonia is driven off by means of steam and lime in the usual way. The vapor from the still containing the ammonia is conducted to the gas main, whence it passes with the gas into the saturator *e*. The sulphate formed in the saturator is collected in a well at the bottom, whence it is automatically removed by means of an injector, and it is then delivered into a centrifugal dryer, *f*. The mother liquor extracted by the centrifugal flows into an intermediate vessel, whence it passes into the saturator. The acid is fed continuously into the saturator, and the liquor therefore is always maintained at a uniform strength. The top portion of the acid in the saturator is thus kept at a slightly acid state, which insures the ammonia being thoroughly extracted from the gas.

It is only necessary for the gas to be heated before entry into the saturator to such a degree as will prevent condensation of the water vapor taking place in the saturator, so that the acid bath will not become diluted. The dew point of gas produced in gas retorts is about 70 degrees C., while in coke oven gas the dew point is about 80 degrees C. This is due to the coal used in gas works, being practically free from moisture. The coal used in coke works contains, on the other hand, a comparatively large percentage of water. It has been ascertained by actual experience that it is not necessary for the gas to be heated to a higher temperature than 80 degrees C. before it is passed into the saturator. At this temperature it has been found that the sulphate is easily and efficiently formed. The ordinary method of producing sulphate requires the temperature of the acid bath to be maintained above 100 degrees C., in order to prevent the steam from the still condensing in the saturator. The reduction of the temperature in the bath insures the complete combination of the ammonia with the acid, as the lower the temperature the greater is the affinity between the acid and the ammonia. At 140 degrees C. the sulphate melts, and even at a much lower temperature than this it becomes decomposed.

Advantages of the New Method.

A considerable saving in steam is effected, owing to the great reduction in the quantity of liquor which has to be distilled. A well designed ammonia still requires 300 kg. of steam to treat 1 ton of gas liquor. No water being required for scrubbing purposes, a saving is effected in this direction. Further, the quantity of liquor required to be distilled being greatly reduced, the effluent from the still is reduced correspondingly, which is an advantage where difficulty is experienced in disposing of this liquid.

The gas in passing through the acid bath becomes freed of all the alkaline matter it may contain. As a consequence of this the destructive elements which are the cause of the corrosion of gas meters, &c., are eliminated, as sulphuretted hydrogen and cyanogen combine with ammonia only in the presence of traces of alkalies. The ammonia washers being dispensed with, no pumps are required for dealing with the scrubbing liquor. Steam is hereby saved and also labor. Naphthaline deposition, it is claimed, is done away with.

The heavy hydro-carbons contained in the gas are not affected by the acid, so that no loss will be occasioned in this direction, while the calorific value of the gas remains unchanged.

The saving which it is claimed would be derived by the new system is put at about 8 cents per ton of coke produced.

Canada's Grangers Oppose Bounties and Duties.

TORONTO, September 12, 1908.—In this correspondence reference was made a short time ago to the working of opinion in regard to the iron and steel bounties and to the susceptibility of the party organizations to sharp changes in the public temper on that point. This morning a circular dealing with the Federal expenditures and fiscal policy was given out by the Dominion Grange, and in that manifesto the bounty question is condemned. The Dominion Grange, as its name indicates, is an association which aims to express the agricultural sense of all Canada on questions of public economy. It is constituted by representatives of local granges. While it does not include a very large percentage of the farmers of the country, its expressed views on political questions of the day undoubtedly command the respect of the farming class. Its influence is extended far beyond its membership by its organ, the *Weekly Sun*, which has a considerable circulation in the rural districts. That newspaper, it is of interest to add, was established by Goldwin Smith, who continues to contribute to it regularly over his well-known signature, "Bystander." As an adherent of the *laissez-faire* school, the venerable publicist is sharply opposed to the Canadian tariff and to the Canadian bounty system, and in his paper these are freely condemned. He was visited a short time ago by Sir Richard Cartwright, the Canadian Minister of Trade and Commerce.

Rumor has been busy of late with Sir Richard's views on the fiscal policy and expenditure of the Government to which he belongs. Whether or not he thinks his colleagues are going too far from the principles he and they held to when in opposition, only those who have inside information can say. Before he came into office he was a severe critic of extravagance, a strong opponent of protection, an enthusiastic advocate of reciprocity with the United States, and a particularly unsparing denouncer of the bounty system. It is recalled, too, that he made advances to the Patrons of Industry, an organization whose place has been taken by the grange. It was reported that his visit to Goldwin Smith was for the purpose of rallying a new party by the old cries, but Goldwin Smith gave out a denial of the story that he himself had any thought of political activity. However, it is commented upon as noteworthy that the grange's manifesto—appearing soon after the visit of Sir Richard to the publicist most in touch with the grange, and on the eve of a general election—contains so many of the formerly characteristic views of the Minister. On the bounties and railroad subsidies the grange's circular is in part as follows:

"According to the Canadian year book, issued by the Dominion Department of Agriculture, there was paid out in bounties to iron and steel manufacturers by the Dominion Government in 13 years, from 1895 to 1907, inclusive, over $9,500,000. This money was not paid for goods bought by and delivered to the Government. It was an absolutely free gift by the Government to this favored interest. Nor is the iron and steel industry the only beneficiary of this bounty system. . . . Farmers, on whom the chief burden of meeting these exactions falls, should unite in demanding a discontinuance of the whole system.

"Between the beginning of the fiscal year 1884 and the end of the short fiscal year 1907, a period subsequent to the $25,000,000 donation to the Canadian Pacific, almost the even $35,500,000 was paid out of the Federal treasury in railroad subsidies. . . . Many of these subsidies were granted for lines in parts of Ontario settled for 100 years. . . . Surely the time has come for farmers to insist that, no matter which party may succeed in the coming election, this particular form of misappropriating the people's funds shall absolutely cease and determine."

C. A. C. J.

A New Blast Furnace Igniter.

At the starting of the Carrie Furnace No. 2 of the Homestead Steel Works on July 6, 1908, a new device for igniting the wood in the bottom of the furnace was used, which proved to be very successful as well as practical. This device, which was designed by C. S. Proudfoot, chief electrician of the Carrie Furnaces, makes use of the great heat and duration of the electric arc to ignite the combustible materials placed in the blow pipes and furnace bosh. The simplicity and certainty of this igniter makes the old method of ignition by hot iron rods seem very cumbersome and inefficient.

As shown in Fig. 1, this useful instrument may be made in any electrical shop. It consists mainly of two pieces of conduit, fitted together, with an iron cone in one end and a switch and plug arrangement at the other. For the ignition end 1 in. conduit is used, having half of the pipe cut away in the middle for about 4 in. Two

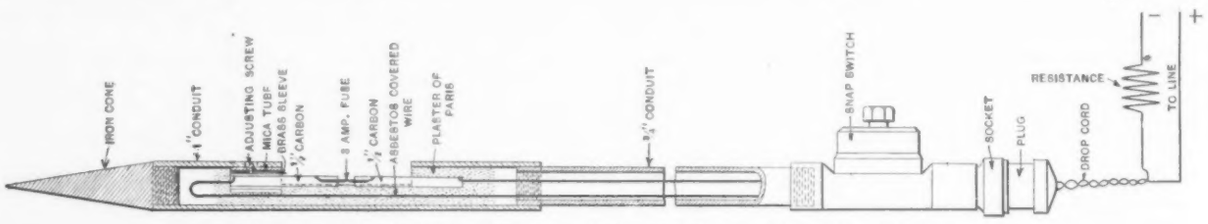


Fig. 1.—Sectional Detail of a Device for Electrically Igniting Blast Furnaces.

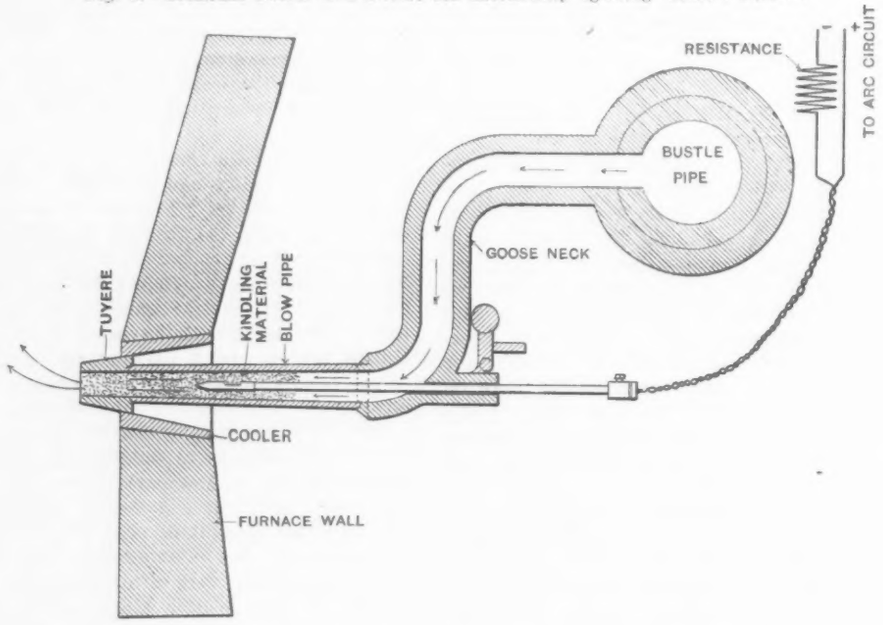


Fig. 2.—The Manner of Inserting the Igniter in the Blow Pipe of the Furnace.

½-in. carbons are placed in this end, so that they lack about ¼ in. of meeting in the space where the pipe is cut away. These carbons are thoroughly insulated from one another, as well as from the conduit, by means of plaster of Paris. A piece of drop cord is dropped down from the 250-volt arc light circuit and brought into the conduit by means of a plug, socket and snap switch. From the snap switch the drop cord is run through the pipe to the carbons, except where the wire has to pass under the arc space, where pipe insulated with asbestos is used. The carbon next to the cone is fixed tight in a brass sleeve, which may be moved in a mica tube, thereby making it possible to adjust the air gap between the carbons by means of a screw in the mica tube. Above this screw a hole is drilled in the conduit for inserting a screw driver and also to avoid a ground. The carbons each have a small hole drilled in the end and coming out at the top side to allow a 3-amp. fuse to be pulled through for starting the arc. A resistance box is put in series with the line to cut down the voltage. By experiment it was found that the igniter took about 6 amp. with a voltage of from 60 to 80 across the arc, and would burn from 30 min. to 1 hr.

On the occasion referred to above, four such igniters were used. The arcing space was wrapped lightly with excelsior soaked with alcohol and held on by tape. The blow pipes were filled with excelsior and shavings, which extended through the tuyeres to the wood in the furnace. The igniters were then inserted in the blow pipes, as is plainly indicated by Fig. 2. The sharp cone allowed the instrument to go through the shavings without pushing them ahead of it.

When all was ready the snap switch was turned, the fuse blew and started the arc which ignited the shavings. The air blast coming down the goose necks fanned the flame into the furnace, and soon the wood was well started. Every igniter worked perfectly. One thing in particular was lacking, *i. e.*, the confusion and uncertainty generally attending the old method of ignition by means of hot bars. The lighting took place in the presence of A. R. Hunt, general superintendent of the Homestead Steel Works, and the officials of the Carrie Furnaces, Mr. Proudfoot personally attending to the igniters.

The test was so successful that this method will be used on starting up all future furnaces of this plant. The simplicity of construction and the dispatch of operation will do much toward bringing this method into more general use.

Between August 19 and September 10 the number of idle cars on the railroads of the United States and Canada was reduced by 30,371, this being the greatest improvement since the middle of July. The number reported idle September 10 was 222,632, as against the maximum of 413,605 on April 29. Of the last reported reduction of 30,371 cars, 21,723 were box cars and 7662 coal and gondola cars, these figures indicating how largely the reduction was due to the crop movement. In addition, there was a decrease of 7662 in the number of bad order cars.

The Youngstown Sheet & Tube Company, Youngstown, Ohio, has re-elected former officials, as follows: J. A. Campbell, president; H. G. Dalton, first vice-president; C. S. Robinson, second vice-president; Richard Garlick, treasurer; Geo. E. Day, secretary and general manager of sales, and W. B. Jones, auditor.

The American Locomotive Company.

The seventh annual report of the American Locomotive Company, covering the operations of the fiscal year ending June 30, 1908, presents the following comparative statement:

INCOME ACCOUNT.

	1907-8.	1906-7.	Increases.
Gross earnings	$37,484,417.39	$49,515,486.33	*$12,031,068.94
Manufacturing, maintenance and administrative expenses	32,497,627.32	42,744,381.30	*10,246,753.98
Net earnings	$4,986,790.07	$6,771,105.03	*$1,784,314.96
Interest on bonds of constituent companies, notes, &c.	460,042.02	412,898.10	47,143.92
Profit	$4,526,748.05	$6,358,206.93	*$1,831,458.88
Dividend, preferred stock, 7 per cent.	1,750,000.00	1,750,000.00	.....
Dividend, common stock, 5 per cent.	1,250,000.00	1,250,000.00	.....
Surplus	$1,526,748.05	$3,358,206.93	*$1,831,458.88
Extraordinary additions and betterment fund	.....	2,000,000.00	*2,000,000.00
Reserve for replacements and maintenance	500,000.00	.....	500,000.00
Net credit to profit and loss	$1,026,748.05	$1,358,206.93	$331,458.88

* Decreases.

CONDENSED GENERAL BALANCE SHEET, JUNE 30, 1908.

Assets.

Cost of property		$49,583,388.10
Securities owned:		
Richmond Locomotive & Machine Works bonds	118,000.00	
Sundry securities	1,098,420.20	
		1,216,420.20
Convertible assets:		
Cash	$4,744,927.98	
Accounts collectable	5,979,888.52	
Bills receivable	2,948,611.63	
Accrued interest	25,520.28	
Material and supplies	3,017,055.94	
Contract work in course of construction	2,204,085.12	
Steam shovels, contractors' locomotives and automobiles manufactured for stock	369,505.73	
		19,289,595.20
Notes discounted (per contra)		1,392,615.33
Total		$71,482,018.83

Liabilities.

Preferred stock	$25,000,000.00	
Common stock	25,000,000.00	
		$50,000,000.00
Bonded debt of constituent companies		2,967,500.00
Current liabilities:		
Gold coupon notes	$4,000,000.00	
Accounts payable	1,318,111.14	
Accrued interest	85,895.83	
Unclaimed interest	9,600.00	
Dividend, preferred stock, payable July 21	437,500.00	
Dividend, common stock, payable August 26	312,500.00	
		6,163,606.97
Extraordinary additions and betterment fund		1,989,084.67
Reserve for replacements and maintenance		500,000.00
Indorsements (per contra)		1,392,615.33
Profit and loss balance June 30, 1907	$7,963,579.80	
Less sundry adjustments of balances in consolidating of five subsidiary companies	521,115.99	
	$7,442,463.81	
Add surplus	1,026,748.05	
		8,469,211.86
Total		$71,482,018.83

The company itself has no bonded debt. The bonded indebtedness of constituents is as follows: Richmond Works, 6 per cent., $550,000; Dickson Works, 5 per cent., $562,500; Rogers Works, 5 per cent., $355,000; Montreal, Works, $1,500,000.

From the accompanying report, presented by President W. H. Marshall, the following comments on the company's operations are taken:

The last eight months of the fiscal year were months of acute financial and business depression. The company was fortunate, however, in having on its books orders for a large number of locomotives which kept its plants in operation at nearly their full capacity until about March 1. Since that date the output of the company has been largely reduced, and the return of a normal demand for its products does not now seem probable in time to avoid a material decrease in the financial results for the ensuing year.

During the year the foreign business of the company has increased, a large number of locomotives having been exported to Japan, Corea, China, Europe and South America. The development of business in Canada has also been satisfactory.

At the close of the year the materials and supplies were inventoried and the difference between the purchase price and the market value was charged to general expenses. In the last annual report mention was made of the issue of $5,000,000 of short term gold coupon notes. The first installment of these coupon notes was paid October 1, 1907, and the second installment of $1,000,000 will be paid October 1, 1908. The cash for that purpose has been set aside.

Since the last annual report the 9000 shares of preferred stock in the company's treasury have been sold, yielding $899,332.50 net.

For simplification five of the subsidiary companies have been consolidated with the controlling company during the year. These are the Richmond Locomotive Works, Manchester Locomotive Works, Rogers Locomotive Works, American Locomotive Company of New Jersey (Cooke Works) and American Locomotive Automobile Company. In the absorption of their accounts certain adjustments of balances were desirable, involving a total charge of $521,115.99 to profit and loss.

The Locomotive & Machine Company, Montreal, Ltd., will continue to operate the plant in Canada, but its name has been changed to the Montreal Locomotive Works, Ltd. During the past three years the American Locomotive Company has made advances to the Montreal Company, with which the latter has extended and completed its plant. In payment for these advances the Montreal Company has issued to the American Locomotive Company additional capital stock, at par, to the amount of $2,485,500, making $3,000,000 capital stock outstanding, all of which is owned by the American Locomotive Company.

The balance sheet includes a charge of $1,392,615.33, representing equipment trust notes discounted by this company in advance of maturity, and, as there is a possible obligation, in the event of any default in payment, a like amount is also shown as a contingent liability. These notes represent the balance of the purchase price of locomotives sold by the company, upon which substantial cash payments were made at the time of purchase. The notes are secured by a lien upon the locomotives and the security is ample. Since the formation of the company it has lost nothing upon equipment notes.

It has seemed wise to the management to close permanently the locomotive works at Providence, a more than corresponding increase in the capacity of the modern plants having been made. The automobile plant is still maintained and operated at Providence.

During the past seven years the company's property has been increased by purchases of land, erection of new buildings and the installation of modern shop equipment, at a cost of $9,488,633. The working capital of the company at the end of the fiscal year was $13,125,988, which is more than twice the amount at its formation in 1901.

In view of the damage to cars from dumping machines at Lake Erie ports and at blast furnace yards the builders of cars and the makers of car dumping machines have been co-operating to reduce it to a minimum. Recently the dumping of 172 cars was specially noticed. It is reported that 93 per cent. of the cars were more or less damaged in unloading. Already some changes have been made in the car dumpers as well as in the cars, and further modifications may result from a continuance of the investigations.

THE IRON AGE

Established in 1855.

New York, Thursday, September 17, 1908.

Entered at the New York Post Office, as Second Class Mail Matter.

DAVID WILLIAMS COMPANY, - - - - - PUBLISHER
14-16 PARK PLACE, NEW YORK

DAVID WILLIAMS, - - - - - PRESIDENT
CHARLES KIRCHHOFF, - - - - - VICE-PRESIDENT
RICHARD R. WILLIAMS, - - - - - TREASURER
GEO. W. COPE, - - - - - SECRETARY

CHARLES KIRCHHOFF - - - - - - - - } EDITORS.
GEO. W. COPE, - - - - - - - - - }
A. I. FINDLEY, - - - - - - - - - }
RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR.

German and American Iron Trades Under Depression.

German steel works, blast furnace and coal syndicates find that the depression has heavily increased the entanglements of the diverse interests they attempt to serve. To take in hand a great industry and fix prices and production, so conducting the operation that the regime of syndicate control shall not become intolerable, is an undertaking for which failure would naturally be predicted. The marvel has been that the various agreements in the German iron trade have stood repeated strains so well. When it comes to foreign business, which is so considerable a factor with many German works, the complications increase. As pointed out in a summation of the export bonus system of the German iron trade given on another page, the uncertainty connected with the bonus—not only the changes in rate which are made at the pleasure of the contributing syndicate, but the entire abolition of the bonus at times—makes the operations of exporting manufacturers of iron and steel, who depend on one or more syndicates for their raw materials, a constant problem.

It can be readily appreciated, moreover, that in a time of falling prices and slack demand, the "mixed" works—those which have their own raw materials and manufacture a diversity of finished products—will enlarge their export operations at the expense of the small, dependent finishing mills. The effect of this does not stop with the latter. They have been good customers of the Coal Syndicate, for example, and the curtailment of their operations—as in the case of the sheet mills cited by the British consular report quoted elsewhere—means that activity at the coal mines of the "mixed" companies is in part at the expense of the Coal Syndicate. Similarly, the Pig Iron Syndicate must suffer from the transfer of business in dull times from works buying pig iron in the market to mills of the large interests, which manufacture their own pig iron. This latter condition in the German market finds its nearest parallel in the United States at the present time in the absence of demand for the steel making pig iron produced by merchant furnaces.

The marked conflict of interests emphasized in Germany since reaction set in in the iron trade stands out by contrast with what has occurred in the United States. Some of the questions now troubling the German syndicates, and which are handled by the adoption of temporizing expedients dictated by the best judgment of syndicate managers, arose in a modified form in the early days of iron trade combinations on this side, 9 or 10 years ago. But after the adoption of the large integrated corporation as a finality, the constant evolution of the American iron trade toward that form has gradually eliminated issues like that of the spread between the market price of semifinished steel and finished material. In the past 11 months the differences between the status of the small independent producers of bars, sheets, tin plates, tubes and wire products and that of the large producers, owning coal and iron mines, have not been specially accentuated. The fact that the ground was so suddenly cut from under the whole industry that there was not business enough to fight over accounts largely for the avoidance of demoralization in the early months of depression. That period having been passed, the trade settled itself to a comparatively peaceable partition of half-loaf rations as preferable to an indiscriminate scramble. Whatever the exceptions taken to some developments of this policy, the fact is noteworthy that the accumulating opposition to certain features of the present regime in the German iron trade has not been paralleled by any equal demonstration of unrest in the iron trade of the United States.

The history of periods of recuperation in this country has been that they brought perils to the stability of iron and steel prices which were not experienced in the midst of the depression. The offering of attractive tonnages after a time of semistarvation involves temptations that have in other years proved too strong. Such a test will come again in due time. What remains to be demonstrated is whether the new era has fortified the trade against their recurrence.

Incorrect Industrial News.

It has long been the custom of *The Iron Age* to verify industrial items appearing in the daily newspapers. This was found necessary from the fact that errors or misstatements were so frequently found in connection with such matters that the only way to guard against repeating them was to apply to the company or firm interested for the purpose of ascertaining the truth of any such statements. A characteristic instance of this kind has come to our attention within the past week, which appears to be worthy of special comment. In a daily paper, which it might be assumed would be well informed relative to local conditions, the following statement appeared:

> The works of the Altoona Iron Company, in Millville, will resume operations in several of its departments Monday morning, and a large number of men, who have been out of employment since last December, will be put to work.
>
> Owing to a lack of orders, the plant has been closed down since last December, and since that time not a wheel has turned, except about two weeks ago, when a half dozen men were put to work in one department. Recently orders for work have been coming in, and yesterday it was announced that some of the departments would resume operations, sufficient orders having been received to warrant it.
>
> The bar mill, guide mill and eight or ten puddling furnaces will be started Monday morning. About 50 men are employed in these departments, and after Monday the men who have been idle for some time will be put to work.

This article was clipped and sent to the Altoona Iron Company, Altoona, Pa., for verification. The following reply was received:

> The information contained in the clipping is entirely incorrect. In the first place, we have not been idle since last December, but were fairly busy up to February 1, since which time we have been running from five to eight days per month. At the present time we have simply started up to fill a few orders requiring about eight days. While we have a considerable quantity of muck bar on hand, we concluded to operate about half of our puddle furnaces during these eight days, so as to furnish some of these men some employment, but do not see any prospect of resumption in the near future.

This case not only shows the necessity of verifying statements in the daily papers relative to industrial hap-

penings, but also emphasizes the unreliability of many of the reports which have been coming out with regard to the resumption of operations by manufacturing establishments.

An Error to Be Avoided in Machine Design.

Some designers of machinery are given to embodying in their plans original mechanical devices the purpose of which would be better served by accepting or adapting standard parts that may be bought. The automobile people have been conspicuous in this respect, though the practice is by no means confined to them. The weakness is met with occasionally in machine tool establishments. It may be a clutch or other part of the transmission, or a bearing or lubricating device or other element of construction. The designer, instead of accepting a fully developed and established article, prefers to work out something of his own. If, as frequently happens, the purpose requires a departure from standard lines; if, for instance, greater strength is needed, or circumstances compel an odd size, the designer, instead of going to a specialist, takes the task upon himself. The part may be made in the home shop, or it may be ordered from a specializing manufacturer to whom the drawings are furnished. In the first case the cost, in addition to the probability of necessary test and resultant alterations in construction or proportions, would probably be greater than in works equipped for the specific purpose. In the latter case the specialist may not feel like suggesting changes which his own experience, usually obtained at much cost and study, has taught him would be better than the design submitted.

Some designers resent suggestion as a criticism; the offspring of their intellects is above reproach. Such absence of broadness is costly to the employer, for the man who in the details of his work seeks to accomplish results equal to those which highly trained specialists can give to him is almost certain to find more or less serious faults in his design, which mean changes, and may result in the dissatisfaction of customers and, perhaps, even in a lowered reputation for his employer's products. The designer should be trained to gather in all available ideas which might prove useful in his work and to adapt them when to do so would mean decreased cost or increased efficiency. Taking the case of a clutch, he should seek the best for his purpose; if there exists in the market one that would do the work well, and which his judgment tells him would be cheaper, everything considered, than one of his own design, he should specify it in his plans. In some works the scope of design is so broad that specialists in many details exist. But in the ordinary manufacturing establishment the drafting room is usually most effective within somewhat narrow limits. If the designer follows out the plan of using the best available results of other men's efforts, he will be more efficient in his own particular field of effort.

In this connection a valuable adjunct of the drafting room is a classified collection of articles and advertisements from technical and mechanical publications, and catalogues, together with such reference works as *The Iron Age Directory*. In such a collection the designer has always available a most important source of information from which he can obtain an intimate acquaintance with products that may prove useful in the design and development of the machinery upon which he is working. The egotism or conceit which leads to the refusal to accept advantages offered in the market is a weakness which employers do well to discourage.

The Uniform Bill of Lading.

When the amended uniform bill of lading was issued recently by the Interstate Commerce Commission, with a recommendation to the railroads to adopt it, *The Iron Age* pointed out a flaw in the document, in the provision that a claim for loss or damage must be filed within four months or the carrier will not be liable. Important shipping interests throughout the country have been protesting vigorously against this and other provisions that are unsatisfactory, and in deference to these objections the adoption of the new document by the carriers has been postponed. The Eastern roads contemplate putting it into effect November 1, without modifying the four months' clause, but the Western roads are undecided whether to use the new form. The order of the commission is not mandatory, and it might be well if the Eastern lines would delay action until the document can receive further consideration.

Congress has placed no limit on the time within which damage claims should be filed against carriers. This has left the matter subject to State laws of limitation, which allow several years before a claim is barred or outlawed. No authority excepting Congress possesses the legislative power necessary to limit, in a national regulation, the rights of shippers as accorded by State laws on a question so vital to their interests. If a four months' clause becomes effective in a national bill of lading, it will undoubtedly be attacked in the courts by shipping interests, unless the carriers waive the rights which it gives them and allow the clause to lie dormant. Or, it may be enforced by railroad claim agents against the multitude of small shippers, and waived in favor of the few who know their legal rights. In any event it will be unfortunate to have in a national bill of lading, adopted by order of the Interstate Commerce Commission, a clause which conflicts with statutory law.

In many branches of the iron trade and related industries there is a busy season, extending over several months of the year, when shippers and their office employees do not have time for the tedious work of preparing the necessary proofs and filing damage claims. This work is left until the rush is over, when it can be done more carefully, and the claims are investigated and disposed of in the railroad office with less trouble and expense than if they were hurriedly filed in incomplete form. The railroad claim department deals with a large number of industries, whose rush seasons come at different times in the year, so that no congestion results if the claims of one industry are delayed a few months. An arbitrary four months' rule would result in the loss to many shippers of just claims which they cannot present within that limit of time.

The grain interests also object vigorously to certain provisions that are apparently unnecessary, regarding weights and elevator deliveries. These provisions are not as favorable to the shipper as the laws of some of the States. The railroads were built under State charters, and have always been subject to State legislation in the liability of the carrier to the shipper, even on interstate shipments, and unnecessary confusion might arise in the conflict between State regulation and the powers of the Interstate Commerce Commission. These objectionable provisions could be eliminated, along with the four months' clause, without injustice to the carriers. Unless this can be done the more liberal railroads may follow the policy of the Rock Island Lines, the largest system in the West, by adopting a "clean" bill of lading, in which the carrier accepts its liability

THE IRON AGE

Established in 1855.

New York, Thursday, September 17, 1908.

Entered at the New York Post Office, as Second Class Mail Matter.

DAVID WILLIAMS COMPANY, - - - - - PUBLISHER
14-16 PARK PLACE, NEW YORK

DAVID WILLIAMS, - - - - - PRESIDENT
CHARLES KIRCHHOFF, - - - - - VICE-PRESIDENT
RICHARD R. WILLIAMS, - - - - - TREASURER
GEO. W. COPE, - - - - - SECRETARY

CHARLES KIRCHHOFF - - - - - - - }
GEO. W. COPE, - - - - - - - - } EDITORS.
A. I. FINDLEY, - - - - - - - - }
RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR.

German and American Iron Trades Under Depression.

German steel works, blast furnace and coal syndicates find that the depression has heavily increased the entanglements of the diverse interests they attempt to serve. To take in hand a great industry and fix prices and production, so conducting the operation that the regime of syndicate control shall not become intolerable, is an undertaking for which failure would naturally be predicted. The marvel has been that the various agreements in the German iron trade have stood repeated strains so well. When it comes to foreign business, which is so considerable a factor with many German works, the complications increase. As pointed out in a summation of the export bonus system of the German iron trade given on another page, the uncertainty connected with the bonus—not only the changes in rate which are made at the pleasure of the contributing syndicate, but the entire abolition of the bonus at times—makes the operations of exporting manufacturers of iron and steel, who depend on one or more syndicates for their raw materials, a constant problem.

It can be readily appreciated, moreover, that in a time of falling prices and slack demand, the "mixed" works—those which have their own raw materials and manufacture a diversity of finished products—will enlarge their export operations at the expense of the small, dependent finishing mills. The effect of this does not stop with the latter. They have been good customers of the Coal Syndicate, for example, and the curtailment of their operations—as in the case of the sheet mills cited by the British consular report quoted elsewhere—means that activity at the coal mines of the "mixed" companies is in part at the expense of the Coal Syndicate. Similarly, the Pig Iron Syndicate must suffer from the transfer of business in dull times from works buying pig iron in the market to mills of the large interests, which manufacture their own pig iron. This latter condition in the German market finds its nearest parallel in the United States at the present time in the absence of demand for the steel making pig iron produced by merchant furnaces.

The marked conflict of interests emphasized in Germany since reaction set in in the iron trade stands out by contrast with what has occurred in the United States. Some of the questions now troubling the German syndicates, and which are handled by the adoption of temporizing expedients dictated by the best judgment of syndicate managers, arose in a modified form in the early days of iron trade combinations on this side, 9 or 10 years ago. But after the adoption of the large integrated corporation as a finality, the constant evolution of the American iron trade toward that form has gradually eliminated issues like that of the spread between the market price of semifinished steel and finished material. In the past 11 months the differences between the status of the small independent producers of bars, sheets, tin plates, tubes and wire products and that of the large producers, owning coal and iron mines, have not been specially accentuated. The fact that the ground was so suddenly cut from under the whole industry that there was not business enough to fight over accounts largely for the avoidance of demoralization in the early months of depression. That period having been passed, the trade settled itself to a comparatively peaceable partition of half-loaf rations as preferable to an indiscriminate scramble. Whatever the exceptions taken to some developments of this policy, the fact is noteworthy that the accumulating opposition to certain features of the present regime in the German iron trade has not been paralleled by any equal demonstration of unrest in the iron trade of the United States.

The history of periods of recuperation in this country has been that they brought perils to the stability of iron and steel prices which were not experienced in the midst of the depression. The offering of attractive tonnages after a time of semistarvation involves temptations that have in other years proved too strong. Such a test will come again in due time. What remains to be demonstrated is whether the new era has fortified the trade against their recurrence.

Incorrect Industrial News.

It has long been the custom of *The Iron Age* to verify industrial items appearing in the daily newspapers. This was found necessary from the fact that errors or misstatements were so frequently found in connection with such matters that the only way to guard against repeating them was to apply to the company or firm interested for the purpose of ascertaining the truth of any such statements. A characteristic instance of this kind has come to our attention within the past week, which appears to be worthy of special comment. In a daily paper, which it might be assumed would be well informed relative to local conditions, the following statement appeared:

> The works of the Altoona Iron Company, in Millville, will resume operations in several of its departments Monday morning, and a large number of men, who have been out of employment since last December, will be put to work.
>
> Owing to a lack of orders, the plant has been closed down since last December, and since that time not a wheel has turned, except about two weeks ago, when a half dozen men were put to work in one department. Recently orders for work have been coming in, and yesterday it was announced that some of the departments would resume operations, sufficient orders having been received to warrant it.
>
> The bar mill, guide mill and eight or ten puddling furnaces will be started Monday morning. About 50 men are employed in these departments, and after Monday the men who have been idle for some time will be put to work.

This article was clipped and sent to the Altoona Iron Company, Altoona, Pa., for verification. The following reply was received:

> The information contained in the clipping is entirely incorrect. In the first place, we have not been idle since last December, but were fairly busy up to February 1, since which time we have been running from five to eight days per month. At the present time we have simply started up to fill a few orders requiring about eight days. While we have a considerable quantity of muck bar on hand, we concluded to operate about half of our puddle furnaces during these eight days, so as to furnish some of these men some employment, but do not see any prospect of resumption in the near future.

This case not only shows the necessity of verifying statements in the daily papers relative to industrial hap-

penings, but also emphasizes the unreliability of many of the reports which have been coming out with regard to the resumption of operations by manufacturing establishments.

An Error to Be Avoided in Machine Design.

Some designers of machinery are given to embodying in their plans original mechanical devices the purpose of which would be better served by accepting or adapting standard parts that may be bought. The automobile people have been conspicuous in this respect, though the practice is by no means confined to them. The weakness is met with occasionally in machine tool establishments. It may be a clutch or other part of the transmission, or a bearing or lubricating device or other element of construction. The designer, instead of accepting a fully developed and established article, prefers to work out something of his own. If, as frequently happens, the purpose requires a departure from standard lines; if, for instance, greater strength is needed, or circumstances compel an odd size, the designer, instead of going to a specialist, takes the task upon himself. The part may be made in the home shop, or it may be ordered from a specializing manufacturer to whom the drawings are furnished. In the first case the cost, in addition to the probability of necessary test and resultant alterations in construction or proportions, would probably be greater than in works equipped for the specific purpose. In the latter case the specialist may not feel like suggesting changes which his own experience, usually obtained at much cost and study, has taught him would be better than the design submitted.

Some designers resent suggestion as a criticism; the offspring of their intellects is above reproach. Such absence of broadness is costly to the employer, for the man who in the details of his work seeks to accomplish results equal to those which highly trained specialists can give to him is almost certain to find more or less serious faults in his design, which mean changes, and may result in the dissatisfaction of customers and, perhaps, even in a lowered reputation for his employer's products. The designer should be trained to gather in all available ideas which might prove useful in his work and to adapt them when to do so would mean decreased cost or increased efficiency. Taking the case of a clutch, he should seek the best for his purpose; if there exists in the market one that would do the work well, and which his judgment tells him would be cheaper, everything considered, than one of his own design, he should specify it in his plans. In some works the scope of design is so broad that specialists in many details exist. But in the ordinary manufacturing establishment the drafting room is usually most effective within somewhat narrow limits. If the designer follows out the plan of using the best available results of other men's efforts, he will be more efficient in his own particular field of effort.

In this connection a valuable adjunct of the drafting room is a classified collection of articles and advertisements from technical and mechanical publications, and catalogues, together with such reference works as *The Iron Age Directory*. In such a collection the designer has always available a most important source of information from which he can obtain an intimate acquaintance with products that may prove useful in the design and development of the machinery upon which he is working. The egotism or conceit which leads to the refusal to accept advantages offered in the market is a weakness which employers do well to discourage.

The Uniform Bill of Lading.

When the amended uniform bill of lading was issued recently by the Interstate Commerce Commission, with a recommendation to the railroads to adopt it, *The Iron Age* pointed out a flaw in the document, in the provision that a claim for loss or damage must be filed within four months or the carrier will not be liable. Important shipping interests throughout the country have been protesting vigorously against this and other provisions that are unsatisfactory, and in deference to these objections the adoption of the new document by the carriers has been postponed. The Eastern roads contemplate putting it into effect November 1, without modifying the four months' clause, but the Western roads are undecided whether to use the new form. The order of the commission is not mandatory, and it might be well if the Eastern lines would delay action until the document can receive further consideration.

Congress has placed no limit on the time within which damage claims should be filed against carriers. This has left the matter subject to State laws of limitation, which allow several years before a claim is barred or outlawed. No authority excepting Congress possesses the legislative power necessary to limit, in a national regulation, the rights of shippers as accorded by State laws on a question so vital to their interests. If a four months' clause becomes effective in a national bill of lading, it will undoubtedly be attacked in the courts by shipping interests, unless the carriers waive the rights which it gives them and allow the clause to lie dormant. Or, it may be enforced by railroad claim agents against the multitude of small shippers, and waived in favor of the few who know their legal rights. In any event it will be unfortunate to have in a national bill of lading, adopted by order of the Interstate Commerce Commission, a clause which conflicts with statutory law.

In many branches of the iron trade and related industries there is a busy season, extending over several months of the year, when shippers and their office employees do not have time for the tedious work of preparing the necessary proofs and filing damage claims. This work is left until the rush is over, when it can be done more carefully, and the claims are investigated and disposed of in the railroad office with less trouble and expense than if they were hurriedly filed in incomplete form. The railroad claim department deals with a large number of industries, whose rush seasons come at different times in the year, so that no congestion results if the claims of one industry are delayed a few months. An arbitrary four months' rule would result in the loss to many shippers of just claims which they cannot present within that limit of time.

The grain interests also object vigorously to certain provisions that are apparently unnecessary, regarding weights and elevator deliveries. These provisions are not as favorable to the shipper as the laws of some of the States. The railroads were built under State charters, and have always been subject to State legislation in the liability of the carrier to the shipper, even on interstate shipments, and unnecessary confusion might arise in the conflict between State regulation and the powers of the Interstate Commerce Commission. These objectionable provisions could be eliminated, along with the four months' clause, without injustice to the carriers. Unless this can be done the more liberal railroads may follow the policy of the Rock Island Lines, the largest system in the West, by adopting a "clean" bill of lading, in which the carrier accepts its liability

for loss or damage as fixed by the common and statutory law.

A national bill of lading would be the most important document used in modern commerce. The railroads pay each year in damage claims about $25,000,000, and the chief purpose of the conditions in a bill of lading is to define clearly the liability to the shipper under which this enormous volume of claims accrues. Bankers advance against "order" bills of lading $2,500,000,000 in the course of a year's business, and the value of the property carried on nonnegotiable bills of lading is many times greater. In an ordinary contract, where the parties understand each other, it is important to use precise language, and in a bill of lading, which carries so many millions of transactions in a year, there should be no word or phrase in conflict with the legal rights of the parties.

CORRESPONDENCE.

The Corrosion of Steel and Iron Tubing.

To the Editor: I note in *The Iron Age* of September 3 an abstract of a paper on "The Relative Corrosion of Steel and Wrought Iron Tubing," by Professors Howe and Stoughton, which, I understand, is a revised edition of the paper read by Professor Stoughton at the Atlantic City meeting of the American Society for Testing Materials on "The Relative Corrosion of Steel and Wrought Iron Water Pipes."

The writer took part in the discussion of the original paper, which will appear in due time in the society's publication, but since the revised edition contains some new arguments, probably suggested by the discussion, I take the liberty of calling attention to the untenability of some of the new points raised. This new paper states, "Nobody has a right to say either that defects which may in the past have lessened tube steel's resistance cannot be cured by skill and care, or, except on valid evidence, that they have not been cured." It is an admitted fact that it is generally a very difficult matter to prove a negative. A person may claim to have invented a process by which a metal can be produced that has certain qualities, and improvised tests made with a few samples may make it appear that the metal has such qualities, and yet this is no proof of what it will do under actual working conditions. He will not make the argument any more convincing by challenging others to prove that he has not produced such metal.

LABORATORY TESTS OF RESISTANCE TO CORROSION ARE UNRELIABLE.

As pointed out in my discussion, it takes a long time to prove increased resistance against corrosion under average working conditions. Laboratory tests with concentrated solutions are entirely unreliable. I will admit for argument's sake that in the experiments made by Professors Howe and Stoughton some samples of this modern steel have shown greater resistance to corrosion than some other samples of wrought iron, but they were only laboratory tests after all; and I know of several laboratory tests in which some samples of the old steel (not Spellerized) have also outlasted wrought iron, and yet it is admitted that this old steel was subject to defects which may in the past have lessened tube steel's resistance.

We can sometimes make reasonable deductions as to what may be expected from certain treatment of metals, provided we have a clear description of the treatment, together with a statement giving reasons why this treatment should have the results expected.

We claim that the greater resistance against corrosion of puddled wrought iron over steel under average working conditions is due to the protection given the iron fibers by the interlaced fibers of silicious slag or cinder. Professor Howe, while admitting the protective effect of this cinder, fears that it is outweighed by the opposite effect of hastening corrosion by difference of potential. If such be the case, what about cast iron, which has a very much larger percentage of impurities, and, consequently, according to Professor Howe's theory, ought to have a still greater difference of electrical potential, and yet resists corrosion much better than even wrought iron? This increased resistance of cast iron has been attributed principally to the outer skin of a silicate of iron formed when cast (See Volume VI, Proceedings of A. S. T. M., page 164), and our contention that a similar silicate of iron which permeates wrought iron increases the resistance of the latter is therefore a perfectly reasonable one.

WHAT IS SPELLERIZED STEEL?

No plausible explanation has as yet been given as to the reasons why this so-called Spellerized steel should resist corrosion better than the ordinary steel, nor has any description been published as to what this process really consists of. In reference thereto the following questions may be asked:

1. Is it elimination of manganese?
2. Is it due to mechanical treatment, and, if so, what does the treatment consist of?
3. Has the segregation of the impurities in the steel during the cooling of the ingot been eliminated?
4. If the segregation still exists, how can it be claimed that 100 or 1000 or 10,000 tubes made out of such segregated steel will all resist corrosion alike?
5. Has a substitute been found to impregnate steel with the life preserving slag fibers such as exist in wrought iron?

As long as these questions are not satisfactorily answered, the consumer can be pardoned for continuing to distrust steel and for being skeptical as to the claims made that steel can be produced in large quantity and of such a uniform quality as to make it equally well resistant against corrosion as puddled wrought iron. I venture to say that this distrust will continue until the test of actual experience, and not laboratory experiments, has proved that a proper remedy has been found.

When this question was before the society two years ago, and after a number of practical engineers present had related their experiences in reference to the more rapid corrosion of steel, Professor Howe (who was the presiding officer) remarked, "It seems as if the steel makers had still to convince the community that steel can be made that is not particularly susceptible to rusting, . . . the burden of proof is on them to convince the users. . . ." This was true two years ago, and it is just as true to-day—the burden of proof is not on the users, but on the makers or their champions.

GEO. SCHUHMANN,
General Manager Reading Iron Company.

READING, PA., September 10, 1908.

New Publications.

Moody's Manual of Railroads and Corporation Securities. Edition for 1908. Ninth year. Pages, 2852. Publisher, the Moody Manual Company, 33 Broadway, New York. Price, $10.

This publication, which is of great value to investors, represents an enormous amount of work in the intelligent and painstaking compilation of information. It gives a most complete description of all railroad, traction, electric, industrial, mining and other corporations in which the investor can have any possible interest. Especial emphasis is given to the steam railroads, public utility companies and the industrial corporations. Each report gives the capitalization, location and character of business, names of officers and directors, particulars regarding all bond issues and a complete record of earnings and dividends. Moreover, in the case of the important railroad and industrial companies these earnings are for the fiscal year ending in 1908—that is, either March 31 or June 30. This, the management claims, makes Moody's Manual the first manual published this year which contains any reports for the year ending June 30, 1908. Owing to the increased sales of Moody's Manual among investors, the management this year has been able to go a step further and has combined the yearly publication—that is, the manual, with a monthly service. This enables

banks or investors to now keep "monthly tabs" on their holdings instead of simply "yearly tabs," as has heretofore been possible. Moreover, this monthly service has been added without either reducing the size of the yearly manual or raising its price. In other words, the combined service is only $10 per year, the price previously charged for the manual alone.

Export Iron Bounties in Germany.

They Vary With Trade Conditions and There is Much Secrecy.

The annual report of Sir Francis Oppenheimer, British Consul-General at Frankfort, Germany, gives an interesting account of the method of apportioning bounties on German iron and steel exports. From it we take the following:

Syndicate Obligations to Small Finishin Works.

There is a curious discrepancy in the policy pursued in connection with the payment of export bounties in the iron industry in Germany. It is openly admitted that the payment of these export bounties fulfils only what is termed a moral claim brought forward by those finishing trades which own no establishments for the manufacture of their raw material. On the one hand the high home prices of raw material render the finishing works' competition impossible in the export market against foreign manufacturers, while their home competition is rendered impossible owing to their own cheap raw material being worked by "mixed" concerns. The amount of the export bounty, it is claimed, never amounts to the full margin between the home price and the foreign price, so that foreign manufacturers could have no cause of complaint. Yet the whole payment, its mode and amount, are surrounded by secrecy which naturally engenders a great amount of suspicion, and that not only abroad. At home the facts are withheld from the iron industry as a whole; in fact this policy of secrecy, in which the payment of export bounties is only one item, is one of the reasons of a steadily growing discontent with the larger syndicates, and more especially the Stahlwerks-Verband from within.

There are two fundamental considerations, due regard to, which will make the system of export bounties more easily intelligible to the layman:

1. The bounty is paid, if at all, by the producers of a commodity to its consumers. The Stahlwerks-Verband, *e. g.*, pays the bounty not to its members, but to those of its customers who work off syndicate products (half-finished goods). For the same reasons, on the other hand, those members of the Stahlwerks-Verband who produce no raw material become entitled to export bounties from the Pig Iron Syndicate, of which they in turn are customers; the members of the Pig Iron Syndicate who own no coal mines in turn become entitled to an export bounty from the Coal Syndicate whose customers they are. The Stahlwerks-Verband members who have no coal mines are also customers of the Coal Syndicate; likewise the customers of the Stahlwerks-Verband are customers of the Coal Syndicate, &c.

Bounty Complications.

2. When production and consumption of any product takes place within the same works no export bounty is paid, because what is termed "own consumption" is not subjected to the prices fixed for the time being by the respective syndicate. The members of the Stahlwerks-Verband who produce also their own pig iron do not become entitled to any export bounty upon produce "A" or "B" paid by the Pig Iron Syndicate to pure "A" or "B" works, because the pig iron which they consume is not dependent upon the price fixed by the Pig Iron Syndicate. The works thus benefiting from export bounties are the works which have to purchase the raw material of at least the last preceding stage of manufacture from a syndicate. If they are dependent upon several syndicates for various stages it is in the interest of these various syndicates to assist them in the manufacture for export by bounties, and they all contribute toward the payment of the amount fixed as a bounty for the time being. Under these circumstances it is clear that the payment of the export bounties is a complicated matter, and it necessitates an office of its own which exists in Düsseldorf.

The maximum bounties so far paid amounted to:

Consumption of	M.	Pf.
Coal	1	50
Pig iron (exclusive of bounty on coal)	2	50
Pig iron (inclusive of bounty on coal; rate second quarter 1905)	4	86
Half-finished goods (inclusive of bounty on coal and pig iron)	15	0
Girders of any kind (inclusive of bounty on coal and pig iron)	20	0

Adjustments to Conditions.

During the last boom the bounties were very considerably reduced. About the middle of 1906 the Coal Syndicate discontinued the payment altogether, and its example was subsequently followed by the Pig Iron Syndicate. The Stahlwerks-Verband (old Verband) continued the payment at the rate of the approximate margin between home price and foreign price. During the first quarter, 1907, it paid upon the export of half-finished goods 2 marks 50 pf. (in the year preceding 7 marks) and upon the export of girders 12 marks 50 pf. per ton. When the Stahlwerks-Verband was renewed it discontinued the payment altogether. In October, 1907, the Stahlwerks-Verband again granted an export bounty of 10 marks per ton consumed of half-finished goods—of course, to the finishing industries (pure rolling mills). Early in 1908 the rate was increased to 15 marks. The joist rolling mills are said again to receive an export bounty of 20 marks.

When the question of export bounties first appeared again on the *tapis* in August, 1907, deliberations were carried on to devise some new form, different from the one that had been adopted during the previous slump, because the grant of an export bounty had led to certain difficulties in the import of bounty-fed iron into the United States. But no new form to encourage the export was found. The Stahlwerks-Verband reserved merely the right to a week's notice in case the export bounty was to be withdrawn, a contingency which might occur not only owing to a change of the market, but owing to pressure from abroad. The export bounty can thus in any case be more easily suited to the export market price. This innovation the producers strongly resented, because their foreign orders, calculated on the basis of an export bounty, might in many cases be spread over a prolonged period and remain uncompleted within a week, when a withdrawal of the export bounty would upset the whole basis of calculation. It has not transpired to what extent the Pig Iron Syndicate and the Coal Syndicate contribute toward these 15 marks, but the Stahlwerks-Verband, newly founded, would be loath to bear the whole financial burden alone. Nor has it transpired that the Coal Syndicate or the Pig Iron Syndicate pay to their own customers export bounties as far as these customers represent the succeeding stages of manufacture without reaching the last stage (finishing industries); but there is no reason to presume that these two syndicates have not been compelled to do again what they had been compelled formerly to do under similar circumstances.

As far as international syndicates exist for finished products (rails, tubes, &c.), the payment of bounties, if any, does not directly affect foreign exporters of finished products in the markets for which the respective commodities have been syndicated internationally.

A Complaint of the Sheet Mills.

Instead of making any concession in price when the bad times commenced, the Coal Syndicate preferred to grant export bounties, which benefit, of course, only a very limited number of its consumers. A petition presented in the last months of 1907 by the sheet iron rolling mills of the district of Hagen to the Coal Syndicate clearly states the position in which these works found themselves; it is sufficiently interesting to warrant an extract. The case is, in fact, particularly instructive on the whole system, because the sheet iron rolling mills constitute a finishing trade which, as a natural result, is dependent on the Coal Syndicate, the Pig Iron Syndicate and the Stahlwerks-Verband. *Mutatis mutandis*, their complaints apply to any industry and any stage of manufacture beyond the stage of the Coal Syndicate—coal

being in fact the first raw material for the iron and other industries. After complaining that the Coal Syndicate had not yet reverted to the system of export bounties, it runs:

"At present the German sheet iron industry works under the most unfavorable conditions at home, nor can it meditate any export. If this state of affairs is allowed to continue, a number of concerns will have to be closed down. This would mean a considerable loss to the Coal Syndicate, from which the Hagen Union alone purchases 140,000 tons per annum. At home the base price for sheet iron has been reduced by the large 'mixed' concerns to 140 marks per ton and less, a price at which the rolling mills find themselves considerably out of pocket, but which the 'mixed' concerns, with their own coal and their own half-finished goods, are well able to stand, so that the whole production of sheet iron must in the near future fall to the large steel concerns, unless an early remedy be devised. The export, upon which the German sheet iron industry at all times relies for the sale of one-third of its produce, is at a standstill, due to the price of 123 marks f.o.b. Rotterdam, leaving the German works a clear price of 125 marks. This export price constitutes, as against the highest export price in the winter, 1906-07, a reduction of about 30 marks per 1000 kilos, a fact which in itself sufficiently illustrates the situation."

The Coal Syndicate's Contribution.

Since January 1 the Coal Syndicate has conceded an export bounty to the Union of Wire Rollers; also to the manufacturers of bar iron, sheet iron and hoop iron (the consumers of half-finished goods). The bounty is no longer as rigorously paid to any syndicates in the finishing trade, but is paid through the counting house for the payment of export bounties at Düsseldorf to those works which in the manufacture of their produce utilize Syndicate coal. Within a short period three different modes of paying the bounty have been tried; for the first time an attempt has been made to grant a greater share in the export bounties to those concerns the products of which represent more highly finished articles. The attempt to pay the export bounties more directly was undoubtedly devised owing to the fact that some of the finishing syndicates have broken up, *e. g.*, Grobblech Verband, Feinblech Verband, &c., since the payment of the bonus had been last discontinued. The rate of this export bounty has not transpired, but it is probably contained (as during the last preceding depression) in the amount ostensibly paid by the Stahlwerks-Verband (see above), for the Stahlwerks-Verband, which was the last among the three leading syndicates (Coal, Pig Iron, Stahlwerks-Verband) to pay the export bounty was the first also again to concede it (October, 1907), and its grant was on January 1 increased by 33 per cent., *i. e.*, by 5 marks. It is not, however, believed that these 5 marks are, as a whole, contributed by the Coal Syndicate, as the directorate has not recently insisted upon an increased levy (Umlage) from its members, which a contribution to that amount would have necessitated.

The New Jones & Laughlin Office Building.

Last Friday and Saturday a large number of persons, many of them from other cities, inspected the new headquarters of the Jones & Laughlin Steel Company, at Second avenue and Ross street, Pittsburgh. The large building here erected will be exclusively used by this company. The contrast between the new structure and the old offices, just in the rear, was almost bewildering to the friends of the company's attaches who had visited them in the old, cramped quarters, says the Pittsburgh *Dispatch*. The former offices were occupied by the firm for nearly 35 years. The company moved into them from Water street in June, 1872. At that time these offices were considered among the finest in the Pittsburgh District.

But as the "headquarters staff" of the company grew from perhaps 40 men to some 300 workers the floor space had to be calculated almost by inches. For 10 years the officials of the company have considered that they had outgrown the old quarters, and for nearly all that time the splendid new structure has been in process of planning. The result is a system of model offices. Everybody in the structure has air and light. Except on very dark days there will be no necessity for a single artificial light during business hours.

The structure is eight stories, fronting on Third avenue, Ross street and Second avenue, with an alley in the rear. It is built to allow for four additional stories when they are necessary. At present, however, the firm is using only the first seven stories, the eighth not being needed now. The contract for the new building was let on August 30 of last year. Delays were experienced by the A. & S. Wilson Company, the contractor, when, in sinking the foundation, it found the boggy remains of the old canal reservoir beneath the site. Nevertheless the work was completed on August 1 of this year, and the building was occupied by the office force August 22.

The design of the exterior is Elizabethan, with rough red bricks and Craig sandstone trimmings. It is absolutely flood and fire proof. Story after story, the treatment of the offices is the same—fine fumed, quarter sawed oak for all furniture, with paneled walls in brown, with the exception of the directors' room, which is in San Domingo mahogany. Corridors and toilet rooms are in white Italian marble. Showers and baths are provided for the employees, with a library and a rest room for the women clerks; the building even has its own barber shop.

One of the unique features is the acres of storage vaults for records to be found in the basement—all fire and flood proof. The mechanical equipment far beneath the first floor is remarkably complete, including a sterilizing plant for drinking water and steam heat, with mechanical ventilation.

Nearly all the furniture within the building was built on special specifications. There are scores of specially made filing and card index cases; fireproof blueprint cabinets—every timesaver the force could devise. One of the features of the arrangement of the offices is that in light, in floor space, even in the furnishings, the humble accountant on the upper floor fares as well as the high officials down nearer the street level. On the first floor is the sales department; on the second the executive officers' and the directors' rooms; the intermediate departments occupy the intervening stories, while on the seventh is found the headquarters of the Monongahela Connecting Railroad.

Among others the guests met B. F. Jones, Jr., president; W. L. Jones, James B. Laughlin, T. K. Laughlin, W. W. Willock, Robert Geddis, and W. C. Moreland, secretary. Willis King, vice-president, expected to be present, but was out of the city. The following heads of departments assisted in showing the visitors through the building: W. H. Lewis, superintendent at Aliquippa; R. B. Kernahan, general manager of the steel mill; E. L. Messler, superintendent of the Eliza Furnace department; H. Bainbridge of the Keystone works; G. M. Laughlin, Jr., superintendent of the Soho department; J. E. McClosky, assistant superintendent of the Soho department; J. L. Haines, F. A. Ogden, C. A. Fisher and F. L. Garlinghouse of the city office.

There were also present the following sales agents of the company from other cities, who had come especially to participate in the reception and to inspect the new building: F. M. Campbell, in charge of the Philadelphia office; H. F. Holloway, New York; A. B. Marble, Boston; D. N. Barker, Chicago; R. M. Kilgore, Cleveland; F. A. Goodrich, St. Louis; F. H. Holt, Detroit; C. S. Bradley, Buffalo; Boyden Kinsey, Cincinnati; C. N. Dannals, Atlanta.

The Jones & Laughlin Steel Company is rebuilding two of the four open hearth furnaces in its Soho plant, Pittsburgh. It is also building four more Talbot open hearth furnaces at its American Iron & Steel Works, Pittsburgh, but these will not be ready for operation until early next year. The company has done little for some time at its Aliquippa plant, where work on four blast furnaces, a Talbot open hearth plant and other improvements was started early last year.

PERSONAL.

W. Edgar Reed has been elected chairman of the Pittsburgh section of the American Institute of Electrical Engineers.

James Parker has been made auditor of the Brier Hill Iron & Coal Company, Youngstown, Ohio.

Murray Shipley, vice-president and secretary of the Lodge & Shipley Company, Cincinnati, has returned from a six weeks' vacation. President William Lodge, who is in Europe seeking relaxation from business cares, is expected to return about October 10.

B. F. Bourne, president of the Bourne-Fuller Company, Cleveland, Ohio, is making a trip through England, Switzerland and Holland.

D. Z. Norton of Oglebay, Norton & Co., and C. C. Bolton, formerly of M. A. Hanna & Co., Cleveland, who have been traveling in Europe for some time, will return in October.

H. Koppers, inventor of the by-product coke ovens bearing his name, arrived at Joliet, Ill., September 9, from his home in England, to inspect the new coke plant of the Illinois Steel Company which has just been completed. It is his intention to remain in this country about three weeks.

Paul Schreiber, sales manager of the Arthur Koppel Company, Pittsburgh, manufacturer of industrial and portable railroads, has sailed for Germany on pleasure and business combined, and will be absent three months.

G. A. Frantz of the Landis Tool Company, Waynesboro, Pa., sailed for Europe September 8 to be absent about six weeks. He expects to combine business with pleasure, and will spend most of his time on the continent.

Elbert H. Gary, chairman of the United States Steel Corporation, was given a dinner at the Reform Club, London, England, September 11, by Sir Hugh Bell, president of the Iron and Steel Institute, and the members of the Council of that society. The dinner was a tribute to Mr. Gary's efforts to bring together the steel operators of the world. Thirty persons were present, among them being Lord Airedale, Lord Glantowe, Sir Weetman Pearson and Sir Robert Hadfield; Baron von Bodenhausen of the Krupp Company and President Schaltenbrand of the German Steel Syndicate, representing Germany, and M. Schneider of Le Creusot and M. de la Briolle of the Comptoir d'Exportation, representing France. Among the Americans present were Consul-General Wynne, G. G. McMurtry of the United States Steel Corporation, and Vivian H. Smith of J. P. Morgan & Co.

F. W. Jaeger, New York manager for Alfred H. Schutte, has returned from Europe, after an absence of six weeks.

Bryon E. Eldred has resigned as secretary of the Duplex Metals Company, 208 Fifth avenue, New York, to devote his time to scientific research and to develop some of his late inventions. In the interest of the latter, Mr. Eldred has recently made two trips to Europe, and expects to make another the latter part of the year. He has opened offices at 208 Fifth avenue.

W. S. Pilling of Pilling & Crane, Philadelphia, returned from abroad September 12, after a trip of several months' duration.

President W. F. Robertson of the Robertson Iron & Steel Company, Cincinnati, has returned from a trip abroad. Much of his time was spent in and about London and Dublin.

Benjamin Nicoll of B. Nicoll & Co., iron merchants of New York, has just returned from Europe in the yacht Varuna, crossing in eight days.

Dr. James Douglas of New York, associated with the Phelps-Dodge copper mining and allied interests, arrived from Europe recently.

The Oklahoma Geological Commission, consisting of the Governor of the State, the Superintendent of Public Instruction and the president of the State University, met for organization July 25, 1908. Governor C. N. Haskell was elected president of the commission, State Superintendent E. D. Cameron was elected secretary, and the president of the State University, A. Grant Evans, was elected executive officer. Dr. Chas. N. Gould, professor of geology at the State University, was elected director of the survey and instructed to begin at once the preparation of reports dealing with the geologic structure and mineral resources of the State.

OBITUARY.

JOHN J. REILLY, president of the J. J. Reilly Mfg. Company, maker of Ideal steam pumps, Louisville, Ky., died September 2, aged 54 years. He was born in Manchester, England, and for some years had been a resident of St. Louis. He was widely known as an inventor. He leaves a widow and a son.

GARDNER DEXTER HISCOX, a well-known writer on scientific subjects, died September 12, at his residence in East Orange, N. J., after a short illness, aged 86 years. He was born in Elizabethtown, N. Y., and, although without college training, devoted his life to scientific work. He was best known as the author of "Compressed Air and Its Application," "Modern Steam Engineering," and "Hydraulic Engineering." He was an authority on heating and ventilating. He leaves a widow, three sons and a daughter. He was a member of the American Astronomical Society.

WILLIAM A. CRANSTON, secretary of the American Screw Company, Providence, R. I., died suddenly of heart disease September 3, aged 60 years. He had been connected with the company practically all his business life, and had worked up to the position of secretary and part owner through all the grades in the company's service, from that of office boy. He took an active interest in public affairs, and had served as a member of the General Assembly of Rhode Island. He leaves a widow and two sons.

A Retort Coke Oven Association Proposed.

The organization of a technical association devoted to retort coke ovens and by-products is being agitated in Great Britain, in view of the importance that industry has assumed. The London *Iron and Coal Trades Review* says:

The manufacture of coke in by-product ovens is a comparatively new industry, dating back no farther than 1881; but since its inception it has made giant strides, and to-day from 60 to 70 plants are in operation. The latest returns issued in October last year show that out of a total of 29,728 ovens in operation, 23,454 were of the beehive type, but it is worthy of note that the number of other types increased from 5546 in 1905 to 6274 in 1906, although the total of all descriptions showed a decline. The patent ovens contributed a very substantial proportion of the 19,296,526 tons of coke produced in 1906, while it cannot be doubted that the make in the newer type will expand at a rapid rate in the near future. There can be no doubt that such an association as that proposed, directing its energies mainly to the solution of problems connected with the by-product oven, could do useful work. The economical production of blast furnace and foundry coke in its best form, for example, is a question which does not affect owners and managers of ovens alone, but has a very real interest for the iron trade. The suggested title is the "Coke Oven and By-products Association."

The first biennial convention of the International Union of Steam Engineers is being held at the Continental Hotel, Philadelphia. Delegates are present from Europe, Canada and Australia, as well as all parts of this country. In addition to daily business sessions, an extensive social programme has been arranged, and a large exhibit of equipment and specialties is being held in connection with the convention.

Cincinnati Industrial Excursion.

Cincinnati manufacturers and men of affairs to the number of about 250 spent a day visiting large plants in the suburbs on Thursday, September 10, the fourth annual event of the Industrial Bureau of that city. Machinery and tool manufacturers constituted the greater part of the excursionists. The affair proved more than ordinarily enjoyable this year, because of the existing conditions in trade and the excellent opportunity offered participants for comparison of notes, and this they did to the fullest. Various projects that have been simmering in machinery and machine tool circles for the past year were discussed, and to some of them an impetus given.

The subject of a central tool and machinery building, modeled somewhat on the lines of the Philadelphia Bourse, but with some radical changes, received considerable encouragement. J. E. Q. Maddux, of J. E. Q. Maddux & Co., who has the matter in hand, was with the party and exhibited lists signed by a large proportion of machinery manufacturers for space, and these lists carried at the top of the sheet an outline of the general plan. It is hoped now to interest enough capital to start the great building which the plans provide for in the block bounded by Third, Baker, Vine and Walnut streets, directly south of the new Sinton Hotel. In the tentative plans there are 800,000 sq. ft., of which 200,000 would be aisle room and elevator space, leaving about 600,000 to be taken by the tool and machinery manufacturers. The estimated cost is $3,000,000. It is hoped to get this enterprise started in a tangible building way soon after the election.

Another important enterprise that had considerable encouragement from the men of affairs in the party was the project of a new radiator manufacturing company to be organized for manufacturing a radiator the patents for which are owned by Dr. Freericks, a prominent local inventor. The capitalization for this company will be on a large scale and it will have plenty of local backing, as it is understood that the largest radiator interest has set its seal of approval on the ideas.

The plant of the Cincinnati Horse Shoe & Iron Company at Cleves, a Cincinnati suburb, was first visited by the excursionists. Here the process of rolling billets and bars was witnessed. The company recently purchased a large quantity of No. 1 railroad wrought scrap, and the greater part of this scrap is bridge material brought from the line of the Cincinnati Southern, which, being a strictly Cincinnati property, suggested a bit of sentiment in the minds of the manufacturing excursionists. The output of the company is 100,000 kegs a year, and at present the plant is running full capacity, with about 125 men, and in a few days will run a night shift to catch up on orders.

The Philip Carey Mfg. Company was another of the large plants visited, and here the excursionists were treated to a luncheon. Some interesting short talks were made by President S. P. Egan of the Industrial Bureau. ex-President A. J. Conroy, President George B. Crabbs of the Carey Company, and others, with James J. Heekin, chairman of the Excursion Committee, as toastmaster. The Philip Carey plant now covers about 70 acres, has 20 buildings, a floor space of over 400,000 sq. ft., and employs 500 people. The products turned out are cement roofing, steam pipe and boiler coverings, asbestos paper and board, asbestos packing, building paper, asphalt paints, asbestos and asphalt materials. It handles 6000 cars of freight per annum, a total of 125,000 tons. The company has 40 branch offices and warehouses in the United States and Canada. The company also handles the entire output of the American Magnesia & Covering Company, Plymouth Meeting, Pa.

Another important plant visited was that of the Stacey Mfg. Company, engineer and builder of gas works and all kinds of apparatus connected therewith. Its annual business now amounts to about $1,000,000. Other plants inspected were those of the Richardson Paper Company at Lockland and the Globe Soap Company at St. Bernard. The excursionists also spent a profitable half hour viewing the Government work in progress at Fernbank, costing $1,250,000.

Two Millions for Ensley Improvements.

The United States Steel Corporation has authorized G. G. Crawford, general manager of the Tennessee Coal, Iron & Railroad Company, to make improvements at the Ensley, Ala., furnaces and steel plant, which will cost about $2,000,000.

It has been decided to remodel and rebuild furnaces Nos. 1, 2 and 3 at Ensley. These now have a capacity each of 235 tons per day, which is to be increased to 385 tons per day. Some additional blowing engines will be required.

At the steel plant a 600 ton mixer is to be installed and there will be some additional electrical machinery. An electrical repair shop is to be built also, and a water purifying plant is to be installed. There are to be ordered 150 steel hopper cars and a considerable number of employees' houses are to be built at the ore mines.

The Lackawanna Steel Company has decided to put in blast one of its furnaces in the Lebanon Valley, operating it as a merchant furnace for the production of foundry pig iron. There are five Lebanon Valley stacks which are operated by the subsidiary company, the Lackawanna Iron & Steel Company; two Bird Coleman furnaces and North Coleman furnace at Cornwall, Pa., and two Colebrook furnaces at Lebanon. Together they have a capacity of about 200,000 tons of pig iron a year. They were last active in October, 1907, all having been blown out in that month.

The directory census of the city of Niagara Falls shows a gain in resident population the past year of 8455, making a present total of 38,042, the greatest percentage of gain shown by any corporate district in the State of New York for the year 1907-08. The cause of this large increase is the expansion of power generation and the constant accession of new industries and enlargement of existing industrial plants using Niagara Falls power, which brings a continual influx of operatives and trades people.

Joseph E. Thropp's Earlston Furnace, near Everett, Pa., was blown in September 14, after having been out of blast since January 13, 1908. His Saxton Furnace has been in operation all this year, excepting from early in January to April 10, during which time the furnace was banked. He is now running all his available furnaces, as the No. 1 stack at Saxton has not yet been remodeled and re-equipped ready for operation.

The production of pig iron in Russia in 1907 is put at 171,900,000 poods, or about 2,750,000 gross tons, of which the southern district produced about 1,775,000 tons, the Ural about 610,000 tons, the central about 75,000 tons, the northern and Baltic 3000 tons and Russian Poland 285,000 tons. The total of heavy forms of manufactured iron and steel reported for 1907 is 2,350,000 tons, of which the southern district produced 1,170,000 tons.

Plans have been prepared for a new office building to be erected at the plant of the Wickwire Steel Company, Buffalo, N. Y. This is one of the finishing touches to the large plant now nearing completion, and will not be completed until some time after operations at the plant have started.

The contract for constructing the three new naval colliers for the United States Government has been awarded to the Maryland Steel Company. The contract price is $479,000 for each. Work on the colliers will be started immediately, and they will be completed within a year.

NEWS OF THE WORKS.

Iron and Steel.

The furnace of the Woodstock Iron & Steel Corporation at Anniston, Ala., has been put in blast after having been rebuilt.

The Westerman Rolling Mills Company, Lockport, N. Y., has resumed operations. A few repairs to the plant have been made necessary owing to the long shutdown, and within a few days these will be completed and the mill will be operated on full time.

The Cohoes Rolling Mill Company, Cohoes, N. Y., has started up with a full complement of men in all departments.

It is expected that the No. 2 Ensley furnace of the Tennessee Coal, Iron & Railroad Company will be put in blast about October 1, and five furnaces of this group will then be active.

General Machinery.

The N. C. Davison Company, Keenan Building, Pittsburgh, Pa., has issued a catalogue illustrating the gas engines, pumps and electrical appliances it handles. The company is agent in the Pittsburgh District for the Riverside Engine Company, Oil City, Pa., maker of heavy duty double acting tandem gas engines, built in sizes from 80 to 2000 hp.

Sealed bids for the installation of ash and coal handling machinery to be installed in the north boiler house at the pumping station, Bureau of Water, Buffalo, N. Y., will be received by Colonel Francis G. Ward, Commissioner, City and County Building, until September 24.

The Modern Machinery Company, Wilmington, Del., has completed an addition to the machine shop to be used as an erecting floor, the space in the machine shop being crowded by the installation of new machinery.

The Precision Tool & Instrument Company, New York, has incorporated its business with a capital stock of $100,000.

Power Plant Equipment.

The Logansport, Ind., Board of Public Works has asked the County Council for an appropriation of $38,000 for the re-equipment of the municipal electric light plant, after the board had approved the plans submitted by an electrical expert. The plans provide for the installation of a 500-kw. 60-cycle turbine generator and a 150-kw. generator, belted to a Buckeye engine. The council met in special session and made the appropriation asked for.

The joint Board of Supervisors of Louisa County and Des Moines County, Iowa, acting for the Louisa-Des Moines Drainage District No. 4, will receive bids until October 6 at the office of the auditor of Des Moines County, Burlington, Iowa, for a pumping plant for the drainage system, to include one 300-hp. water tube boiler, one 500-hp. horizontal compound condensing steam engine, two 48-in. centrifugal pumps, foundations, buildings, pipe, &c.

The Madison County Gas & Electric Company, E. J. Kenney, manager and superintendent, Oneida, N. Y., will change its entire system from 60 cycle to 40 cycle and install another generator, switchboard and other accessories.

The Auburn Light, Heat & Power Company, E. G. Preston, chief engineer, Auburn, N. Y., is arranging to double the capacity of its power plant. The present boilers are to be removed and a triple set of boilers of larger capacity installed.

Foundries.

The Coatesville Foundry & Machine Company, Coatesville, Pa., has placed its new plant in operation, employing at the start 40 hands. The plant has a daily capacity of 20 tons, and a sufficient quantity of orders for boiler fronts and gray iron castings is on hand to keep it running for some time. It is situated on the Pennsylvania Railroad, and the equipment was installed under the supervision of Rex C. Wilson. Penrose N. Davis is president; H. M. Garrett, vice-president; Frederick E. Moore, treasurer and secretary. The directors include the officers and Nelson H. Jennings, Charles Edgerton, George Livermore, C. W. Ash, H. B. Spackman and Edwin T. Moore.

The Campbell Mfg. Company, Gadsden, Ala., has commenced operations. This plant has just been completed and is fully equipped for the manufacture of cast iron soil pipe and fittings.

Announcement is made that the plant of the Sheffield Cast Iron Pipe & Foundry Company, at Sheffield, Ala., will be put in operation September 15.

The Sibley Machine Tool Company, South Bend, Ind., is building a new foundry, 88 x 154 ft., to replace a frame building.

Fires.

The soap factory of Enoch Morgan's Sons, New York, was destroyed by fire September 13, the loss being about $100,000.

The plant of the Kosmosdale Cement Company, Kosmosdale, near Louisville, Ky., was destroyed by fire September 12, the loss being stated at $1,000,000. The company, which is controlled by Philadelphia capitalists, is said to have a large contract on hand for cement for the Panama Canal.

The H. B. Johnson Company's tannery at Toronto, Ont., was burned September 11, with an estimated loss of $100,000.

The stove plant of the McClary Mfg. Company, Montreal, Quebec, was damaged $20,000 by fire September 12.

The Empire Cork Company's factory in Brooklyn, N. Y., was burned September 8, the loss being about $50,000.

The machine shop of the Standard Foundry & Mfg. Company, Cleveland, was badly damaged by fire September 11, a portion of the machinery being ruined. The company will take immediate steps to repair the loss, and announces that the fire will not seriously interfere with the operation of the plant.

The automobile factory building of the Tiley-Pratt Company's plant, Essex, Conn., was burned September 11, together with its equipment, the loss being about $10,000.

The plant of the Locke Insulator Works, Lima, N. Y., was burned September 12, the loss being about $50,000.

The shops and roundhouse of the International & Great Northern Railroad at Taylor, Texas, were burned September 10. The loss is estimated at $10,000.

Miscellaneous.

The Republic Rubber Company, Youngstown, Ohio, is making some additions to its plant, consisting of two reinforced concrete buildings, one 65 x 240 ft., and the other 30 x 60 ft. The company will be in the market for some machinery to equip these buildings.

The Mt. Hope Coke Company, Greensburg, Pa., has increased its capital stock from $1000 to $400,000.

The Marengo Portland Cement Company, E. J. Davis, superintendent, Caledonia, N. Y., announces that it will soon start construction on a stone crushing plant along the Erie Railroad in the vicinity of Lime Rock. The Hunt Engineering Company, Iola, Kan., has been awarded the contract for enlarging the cement plant and increasing capacity to 2500 bbls. daily.

The Niagara, Lockport & Ontario Power Company, Fidelity Building, Buffalo, N. Y., has been awarded contract for supplying electrical power to the new limestone quarry to be opened near Sanborn, N. Y., by the Casparis Stone Company, Columbus, Ohio, and the Empire Limestone Company, Buffalo. In supplying electrical power to the above location, it is necessary for the Niagara, Lockport & Ontario Power Company to build a new transmission line from its main line to the quarry, a distance of 9 miles. The new crushing plant is to have a capacity of 3000 tons daily and is to be operated in connection with an extensive contract held by the company for supplying material to the Lackawanna Steel Company. An exceptional feature regarding this plant is the fact that it will be operated without the use of a steam power plant, all energy being supplied through electric power. Current will be delivered to the quarry at 11,000 volts. A transformer plant consisting of three 200-kw. oil cooled transformers for transforming from 11,000 volts alternating to 480 volts, 25 cycle, and three 190-kw. oil cooled transformers for transforming from 11,000 volts to 360 volts, 25 cycle, will be installed; also one 500-kw. rotary converter, together with switchboard apparatus, &c. Other equipment to be installed will consist of one 90-ton steam shovel, to be electric driven and operated by four 75-hp. motors. This is said to be the first case in which an electrically driven shovel has ever been utilized in quarry work. Two motor driven air compressors, 20 in. by 12 ft. by 36 in.; motor driven crusher with 250 hp. motor, and belt conveyor with 40-hp. motor will also be installed. Construction on the plant will be started at once. It is understood that contract will be given to the Allis-Chalmers Company for the complete equipping of the plant.

It is announced at Muncie, Ind., that the first new factory to be secured with the aid of the $125,000 factory fund recently raised by the city will be an automobile plant, to be financed by Thomas F. Hart and Madison Maring, two local capitalists.

The Progressive Metal & Refining Company, Milwaukee, Wis., of which Jacon Sadek is president and M. L. Goldman secretary, has filed an amendment to its articles of incorporation increasing its capital stock from $10,000 to $25,000.

The American Iron & Wire Works Company, Chicago, Ill., is extending its plant by the erection of a two-story addition, 75 x 94 ft. The company, whose product consists of structural ornamental wire, brass and bronze work, has been compelled by the expansion of its business to provide additional room, and the new building will not only facilitate manufacturing operations but will enable the company to increase its output materially.

The Decatur Cornice & Roofing Company, New Decatur, Ala., will more than double its present facilities for the manufacture of roofing, cornices, architectural sheet metal building material, &c., by the erection of a three-story building, 135 ft. square, of reinforced concrete and brick construction. The building will be equipped with modern machinery which will be driven by independent motors, and heating plant, automatic sprinkling system for fire protection, electric elevators, &c., will be installed. It is expected to have the building completed by January 1.

The Kennedy Valve Company, Elmira, N. Y., contemplates enlarging its plant, and has plans drawn for an extension to the valve department.

The Dundee Brass Mfg. Company, Dundee, N. Y., is having plans prepared for a one-story foundry and factory building, 40 x 200 ft., of concrete construction.

The Central Belting Company, New York, organized with a capital stock of $20,000, has taken over the business and assets of the Fay Belting Company, and will continue the manufacture of leather belting at 3 Jacob street.

The Iron and Metal Trades

Chicago Furnaces Meet Valley Competition.

Steel Pipe Chosen for the Springfield Line.

Some Large Structural Work in Sight.

In some quarters some hesitation on the part of buyers is noted, because of the impending elections, and this may become more pronounced. On the other hand, Pittsburgh reports that jobbers from the South, Southwest and Pacific Coast are showing some disposition to anticipate requirements, notably in Sheets, Pipe and Wire products.

Some inquiries for Pig Iron have come into the market for 1909 requirements, but comparatively little has been done, because sellers generally are disposed to ask prices which buyers are not prepared to meet. So far as current business is concerned, the situation is somewhat mixed. Alabama and Virginia makers, being well supplied with orders for the near future, maintain a firm attitude. Eastern producers have stiffened on Foundry and Forge Irons, and are doing a fair amount of selling. In the Central West the position is not so well defined. The furnaces in the Chicago District have met the competition, in their territory, of the Valley makers and have reduced their price from $17 to $16.50 for No. 2 Foundry at furnace. Pipe makers, East and West, have bought fair quantities of Iron and are in the market for more.

There are some negotiations pending in eastern Pennsylvania on some large blocks of Basic Iron, both for delivery this year and for the first half of 1909. On the other hand, Cincinnati reports efforts to market Basic Pig which was contracted for some time ago at lower prices.

The decision of the Lackawanna Steel Company to employ a part of its Lebanon plants as merchant furnaces is interesting, but for the present the make of only one stack will be marketed.

Cleveland reports the buying of moderate amounts of non-Bessemer Ores by furnaces which have not hitherto purchased.

There has been no change in the Rail trade, only small orders coming out.

In the Plate trade the item of interest this week is that the Springfield Pipe contract, on which bids for both Steel and Cast Iron Pipe were put in, has gone to the makers of the former. The line is to be made of 42-in. Lock Bar Pipe, and will call for about 6000 tons, which will go to Pittsburgh. Eastern Plate makers are figuring on the material for the three Government colliers, the contract for which was secured by the Maryland Steel Company. Plate makers are to meet Thursday to discuss the reports of irregularities in prices.

In structural material the chief event is that work has begun on the Wanamaker Building in Philadelphia, which will require 14,000 tons. The material is to be supplied by the American Bridge Company. The Monongahela Bridge, calling for about 2700 tons, has been virtually placed. Some large structures are coming up. These include 6000 tons for the Keithsburg Bridge over the Mississippi, 8000 tons for a 20-story building of the People's Gas Company at Chicago, 10,000 tons for the new Chicago City Hall, 2000 tons for a stone crusher building at Gary, 2000 to 3000 tons for the ore handling machinery for the Pittsburgh and Conneaut Dock Company and 2000 tons for the county bridge across the Hackensack. Bids have gone in for 2000 tons for the Pennsylvania bridge across the Hackensack, and 1800 tons for elevated work for the Interborough Transit Company.

From the Pacific Coast comes the report that quite a tonnage of Belgian Beams has been sold to fabricators in that section.

The St. Paul road is in the market for 5000 Steel underframe cars.

Southern Cast Iron Pipe makers have advanced their quotations $1 per ton, because of the advance in Pig Iron. It is believed that the 3000-ton contract for Cleveland will test this attitude. Eastern Pipe makers take the ground that they should be supported by the Pig Iron interests through lower prices of raw material so as to allow them to work for stock during the dull winter months.

In the metal trade, resales of Copper taken by speculative interests some time since continue a feature of some importance. It is hinted, too, that selling agencies are encouraging exports by prices which they are not willing to concede to domestic buyers.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Sept.16, 1908.	Sept.9, 1908.	Aug.19, 1908.	Sept.18, 1907.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	**$16.75**	$16.50	$16.50	$20.50
Foundry No. 2, Southern, Cincinnati	**15.75**	15.50	15.25	21.25
Foundry No. 2, Local, Chicago	*16.50*	17.00	17.00	23.50
Basic, delivered Eastern Pa.	**15.25**	15.25	15.00	18.85
Basic, Valley Furnace	14.50	14.50	14.50	20.00
Bessemer, Pittsburgh	*15.90*	15.90	16.30	22.90
Gray Forge, Pittsburgh	*14.40*	14.40	14.65	20.90
Lake Superior Charcoal, Chicago	19.50	19.50	19.50	27.00
BILLETS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh	25.00	25.00	25.00	29.50
Forging Billets, Pittsburgh	27.00	27.00	27.00	32.00
Open Hearth Billets, Phila.	26.20	26.20	26.20	31.00
Wire Rods, Pittsburgh	33.00	33.00	33.00	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel Rails, Melting, Chicago	**15.00**	15.00	14.25	17.00
Steel Rails, Melting, Phila.	**15.25**	15.25	14.50	16.75
Iron Rails, Chicago	**18.00**	16.75	16.50	20.25
Iron Rails, Philadelphia	**20.50**	20.00	20.00	20.50
Car Wheels, Chicago	*15.25*	15.50	15.50	24.50
Car Wheels, Philadelphia	15.00	15.00	15.00	23.00
Heavy Steel Scrap, Pittsburgh	*14.25*	14.25	15.00	17.00
Heavy Steel Scrap, Chicago	13.00	13.00	13.00	14.75
Heavy Steel Scrap, Philadelphia	**15.25**	15.25	14.50	16.50
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	**1.45**	1.45	1.40	1.80
Common Iron Bars, Chicago	1.50	1.50	1.50	1.78
Common Iron Bars, Pittsburgh	1.40	1.40	1.40	1.70
Steel Bars, Tidewater, New York	1.56	1.56	1.56	1.86
Steel Bars, Pittsburgh	1.40	1.40	1.40	1.60
Tank Plates, Tidewater, New York	1.76	1.76	1.76	1.86
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.70
Beams, Tidewater, New York	1.76	1.76	1.76	1.86
Beams, Pittsburgh	1.60	1.60	1.60	1.70
Angles, Tidewater, New York	1.76	1.76	1.76	1.86
Angles, Pittsburgh	1.60	1.60	1.60	1.70
Skelp, Grooved Steel, Pittsburgh	1.45	1.45	1.45	1.85
Skelp, Sheared Steel, Pittsburgh	1.50	1.50	1.50	1.95
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.40	2.40	2.40	2.50
Wire Nails, Pittsburgh	1.95	1.95	1.95	2.05
Cut Nails, Pittsburgh	**1.80**	1.80	1.75	2.15
Barb Wire, Galv., Pittsburgh	2.40	2.40	2.40	2.50
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	**13.75**	13.87½	13.62½	15.50
Electrolytic Copper, New York	13.50	13.50	13.50	15.12½
Spelter, New York	**4.75**	4.75	4.65	5.50
Spelter, St. Louis	**4.60**	4.60	4.50	4.85
Lead, New York	*4.52½*	4.60	4.60	4.75
Lead, St. Louis	*4.40*	4.45	4.45	4.67½
Tin, New York	*28.55*	28.60	29.50	37.62½
Antimony, Hallett, New York	*7.75*	8.00	8.00	10.00
Nickel, New York	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York	$3.89	$3.89	$3.89	$4.09

Chicago.

FISHER BUILDING, September 16, 1908.—(*By Telegraph.*)

The gradations of improvement in finished lines of Iron and Steel are, with the exception of Wire products and Steel Bars, very finely drawn; so fine, in fact, are the divisions of the scale, that progress is scarcely discernible in week to week observations. Yet there is, on the whole, general improvement, which is manifest in the slight increases reported in active producing capacities, and wherever these appear it can safely be taken as representing a corresponding increase in consumption, owing to the restrictions still held against purchases for other than immediate requirements. The contrast of conditions in the two great fundamental sources of industrial activity, agriculture and the railroads, is sharply defined in the growing tonnage of Wire products and Steel Bars, which is being supplied chiefly by the demands of the former. Those lines, on the other hand, which are dependent upon the prosperity of the latter interests are making but feeble progress. No new Rail tonnage of consequence is coming out and the demand for Track Supplies has declined somewhat in the past week or two. Contracts for fabricated material closed within the week aggregated something over 23,000 tons, 15,000 tons of which represents the final requirements for the Wanamaker Building, Philadelphia. The remainder of the tonnage goes into Western structures, the most important of which is a bridge over the Mississippi River at Keithsburg, Ill., for the construction of which about 6000 tons will be used. While there is still wide room for improvement in fabricat-

ing prices, the outlook for a greater volume of tonnage is promising. There is little doing in Pig Iron, and notwithstanding the fact that more favorable prices are now obtainable on Northern Iron, but few buyers are in the market and few producers are making special efforts to secure contracts beyond the last quarter of this year. Buyers are equally indifferent respecting next year's requirements, and as a result the market is practically at a standstill. Among this week's transactions of interest is the purchase of 500 tons of Ferromanganese by a local Steel producer at $46.15, Chicago.

Pig Iron.—The market has not in a long while relapsed into a state of as nearly complete inactivity and absolute halt as was shown in the meager tonnage changing hands last week, nor are consumers showing much prospective interest in inquiries. It is understood that the principal Southern producers are not yet ready to fix price schedules for next year's deliveries except at prices which consumers now regard as wholly out of the question. Developments of the past two or three weeks, moreover, have not been of a character to excite apprehension in the minds of buyers as to an upward trend of values for that period. While the Southern interests seem to be still holding firmly at $12.50 to $13, Birmingham, little Iron is being moved at these prices, and they are not likely to attract much business as long as the Northern furnaces are willing to book orders at lower figures. The fact, too, that the make is increasing rather than diminishing is not conducive to a bullish sentiment respecting prices for the first half and quarter of next year. A significant feature in this market is the break in Northern prices, which have yielded 50 cents a ton and are now squarely on a basis of $16.50 to $17, Chicago. One prominent seller of Northern Irons has expressed a willingness to contract for deliveries extending through the first quarter at $17, at furnace. The principal sales for last week included two lots of 1000 tons each of Northern Iron for shipment through the remaining months of this year and the first quarter of next year, and 700 tons of Silvery Iron, 10 per cent. silicon, purchased by a car wheel company for prompt shipment at $21.35, Chicago. This price can be duplicated, and therefore indicates a decided reaction in Silveries which have been held about $1 above this price. Southern 4 per cent. Silveries are quoted at $17.85; 5 per cent., $18.35; 6 per cent., $18.85, all Chicago delivery. One sale of 100 tons of Southern No. 2 Foundry at $13, Birmingham, is reported. Weakness in the Southern Ohio and Valley fields seems to be the dominant factor in fixing the price of Foundry Irons. The following quotations are for September delivery, f.o.b. Chicago:

Lake Superior Charcoal	$19.50 to $20.00
Northern Coke Foundry, No. 1	17.00 to 17.50
Northern Coke Foundry, No. 2	16.50 to 17.00
Northern Coke Foundry, No. 3	16.00 to 16.50
Northern Scotch, No. 1	17.50 to 18.00
Southern Coke, No. 1	17.35 to 17.85
Southern Coke, No. 2	16.85 to 17.35
Southern Coke, No. 3	16.35 to 16.85
Southern Coke, No. 4	15.85 to 16.35
Southern Coke, No. 1 Soft	17.35 to 17.85
Southern Coke, No. 2 Soft	16.85 to 17.35
Southern Gray Forge	15.35 to 15.85
Southern Mottled	15.10 to 15.60
Malleable Bessemer	17.00 to 17.50
Standard Bessemer	17.65 to 18.10
Jackson Co. and Kentucky Silvery, 6 %	19.40 to 19.90
Jackson Co. and Kentucky Silvery, 8 %	20.40 to 20.90
Jackson Co. and Kentucky Silvery, 10 %	22.40 to 22.90

(*By Mail.*)

Billets and Rods.—The largest business in prospect is that which will result from the placing of Billets required to supply axles for cars recently ordered for the Harriman lines, but as yet no sales for this account have been reported in this market. Forging Billets for other requirements are in scant demand, orders being largely of an incidental nature and for small lots. Notwithstanding some slight deviation from the regular price that has been reported, the recognized standard of $28.50, base, Chicago, is being fairly well maintained. The demand for Wire Rods is of fair volume, and a good tonnage of specifications is being offered without pressure. Prices continue unchanged, and are firm at the following quotations: Bessemer, $33; Basic, $34; Chain, $33; all at Pittsburgh.

Rails and Track Supplies.—Light Rails continue to hold a conspicuous place in the developments of railroad material. Orders have been coming in the past two weeks at a rate that bids fair to surpass the August aggregate, which was of fairly satisfactory proportions. Interest in Standard Sections is confined principally to orders for immediate delivery, which, though quite numerous, are for small lots. This demand is significant, in that it indicates the revival of activities in some of the small projects which were arrested by the recent financial panic. Some falling off in orders for Track Supplies is noted, but enough business has been accumulated in recent weeks to keep the Joliet Spike and Bolt mills running at moderate capacity. We quote as follows: Angle Bars, accompanying Rail orders, 1908 delivery, 1.50c.; car lots, 1.60c.; Spikes, 1.80c. to 1.90c., according to delivery; Track Bolts, 2.10c. to 2.15c., base, Square Nuts, and 2.25c. to 2.30c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb., $26; 20-lb., $27; 16-lb., $28; 12-lb., $29. Standard Sections, $28, f.o.b. mill, full freight to destination.

Structural Material.—The fabricated material amounting to 15,000 tons for the third section of the Wanamaker Building, Philadelphia, for which D. H. Burnham & Co., Chicago, are architects, has been placed with the American Bridge Company, which also closed with the Barnett & Record Company, Minneapolis, for 1000 tons, which will go into an elevator building. Other orders entered by this interest, which were almost exclusively for buildings, amounted to 2000 tons. Included in the plans now in the hands of the fabricators for figures are 2000 tons for a stone crusher plant, consisting of four buildings to be erected at Gary, Ill., by Dolese & Sheppard, and 6000 tons for a railroad bridge over the Mississippi River, at Keithsburg, Ill., for the Iowa Central and Minneapolis & St. Louis railroads. Of the structures in prospect that will require tonnage of notable size are the 20-story office building planned by the People's Gas Light & Coke Company, Chicago, which it is estimated will take 8000 tons, and the new Chicago City Hall requiring 10,000 tons, plans for both of which it is expected will soon be submitted for figures; also the Chicago Musical College, a building of eight stories, with offices and studios to be located on Michigan avenue, for which about 2000 tons will be needed. Besides these enterprises there are quite a number of buildings now on architects' boards, which promise to develop a large amount of tonnage before long. Prices from store are 1.95c. to 2c. Mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.78c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.78c.; larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 6 in. or one or both legs, 1.88c.; Beams, larger than 15 in., 1.88c.; Zees, 3 in. and over, 1.78c.; Tees, 3 in. and over, 1.83c.

Plates.—Not only is there a moderate increase in the general run of orders and specifications, but the situation is prospectively improved by the anticipated tonnage that will be required for the construction of cars for which orders have been placed. The Sheared Plate mill at the South Works of the Illinois Steel Company is in operation this week, but the Universal mill is idle. Prices continue to be shaded by some mills to the extent of $2 a ton. We quote mill shipments as follows: Tank Plates, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.78c.; 3-16 in., 1.88c.; Nos. 7 and 8 gauge, 1.93c.; No. 9, 2.03c.; Flange quality, in widths up to 100 in., 1.88c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.88c.; Flange quality, 1.98c. Store prices on Plates are as follows: Tank Plates, ¼-in. and heavier, up to 72 in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in. up to 60 in. wide, 2.10c. to 2.25c.; 72 in. wide, 2.30c. to 2.40c.; No. 8, up to 60 in. wide, 2.10c. to 2.15c.; Flange and Head quality, 0.25c. extra.

Sheets.—Sheets are moving in better volume as the result of an increased demand. It is noted that buyers are almost uniformly insisting upon prompt deliveries, which is taken as an evidence of scanty stocks and an indisposition to anticipate requirements beyond actual present needs. While betterment is observed all along the line, it is noted that Galvanized Sheets has felt the improvement to a larger extent than Black Sheets. Prices are still susceptible to concessions of from $1 to $2 a ton, but owing to the gradual filling up of the order books of the smaller mills a firmer tendency is developing. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16, 2.18c.; Box Annealed, Nos. 17 to 21, 2.43c.; Nos. 22 to 24, 2.48c.; Nos. 25 and 26, 2.53c.; No. 27, 2.58c.; No. 28, 2.68c.; No. 29, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c.; Black Sheets from store: Blue Annealed, No. 10, 2.15c.; No. 12, 2.20c.; No. 14, 2.25c.; No. 16, 2.35c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

Bars.—Nowhere in the market is evidence of improvement more pronounced than in Steel Bars. Mill capacities are steadily filling up owing to the increased liberality with which specifications are being offered. All of the Bar mills of the Bay View Works of the Illinois Steel Company are active this week, and all of the Western mills of the Republic Iron & Steel Company are likewise running at fuller capacities. The demand for Iron Bars has not improved correspondingly, though a fair run of orders from jobbers and manufacturers is being entered. The relatively high prices of Scrap material have strengthened the Bar market in that it has a tendency to hold prices firm. Quotations, Chicago, are as follows: Steel Bars, 1.58c., with half extras: Iron Bars, 1.50c.; Hoops, No. 13 and lighter, 1.98c., full extra Hoop card; Bands, No. 12 gauge and heavier, 1.58c., half extra Steel Bar card; Soft Steel Angles and Shapes, 1.68c., half extras. Store prices are as follows: Bar Iron,

2c. to 2.15c.; Steel Bars, 1.90c. to 2c.; Steel Bands, 1.90c., as per Bar card, half extras; Soft Steel Hoops, 2.25c. to 2.35c., full extras.

Merchant Pipe.—Week by week small gains are noted in the general volume of business, but they are not great enough to make a notable increase in the tonnage placed. Buyers continue to gauge their orders by the extent of nearby requirements, which seem to increase very slowly. The following mill discounts are quoted: Black Pipe, ¾ to 6 in., 73.2; 7 to 12 in., 70.2; Galvanized, ¾ to 6 in., 63.2. These discounts are subject to one point on the base. From store, in small lots, Chicago jobbers quote 73 per cent. on Black Steel Pipe, ¾ to 6 in. About three points above these prices is asked for Iron Pipe.

Boiler Tubes.—Railroad Locomotive Tubes are in slightly better demand because of the imperative needs of the railroads in repair work. The movement of Merchant Tubes is naturally controlled by the state of activity in Boiler shops, in which there is but little improvement observed. Mill quotations for future delivery, on the base sizes, are as follows: 2¾ to 4½ in., inclusive, Steel Tubes, 63.2; Iron, 50.2; Seamless, 50.2; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in	35	35	35
1¾ to 2¼ in	50	35	35
2½ in	52½	35	35
2¾ to 5 in	60	47½	47½
6 in. and larger	50	35	..

Merchant Steel.—The same influences that favorably affect the demand for Steel Bars are effective in bringing out specifications for Merchant Steel in a slightly increased volume. In other respects conditions are unchanged, and the market is without developments of special interest. We quote as follows: Planished or Smooth Finished Tire Steel, 1.78c.; Iron Finish, up to 1½ x ½ in., 1.73c., base, Steel card; Iron Finish, 1½ x ½ in. and larger, 1.58c., base, Tire card; Channels for solid Rubber Tires, ¾ to 1 in., 2.08c., and 1⅛ in. and larger, 1.98c.; Smooth Finished Machinery Steel, 2.08c.; Flat Sleigh Shoe, 1.63c.; Concave and Convex Sleigh Shoe, 1.83c.; Cutter Shoe, 2.05c.; Toe Calk Steel, 2.13c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7¼c. to 8c., and still higher prices are asked on special grades. Cold Rolled Shafting on contracts for 100 tons and over, 57 per cent. off; 56 per cent. off in car lots; 52 per cent. in less than car lots, on which carload freight is allowed within base territory.

Cast Iron Pipe.—Of the several small municipal lettings awarded last week, that of 800 tons for Hamilton, Ohio, was the most important; this was secured by the United States Cast Iron Pipe & Foundry Company, which also entered four or five others of smaller tonnage. Practically all of the business now in sight is of like character, and includes no large lots. Business in Gas Pipe is extremely quiet with but little inquiry. Prices are unchanged, which we quote nominally, per net ton, Chicago, as follows: Water Pipe, 4 in., $27; 6 to 12 in., $26; 16 in. and up, $25, with $1 extra for Gas Pipe.

Metals.—Since the spurt of buying in August, when some orders for round lots were placed, the demand for Copper has settled back to hand to mouth purchases. As a result orders are small, but fairly numerous, and, though the tonnage of new business for September is comparatively light, yet the shipments against contracts indicate that consumption is gradually increasing. Prices on all Metals are unchanged, but fairly firm. Slight improvement is noted on a few grades of Old Material, the demand for which is relatively the same as for new Metals. Quotations are as follows: Casting Copper, 13¾c.; Lake, 14c. to 14¼c., in car lots for prompt shipment; small lots, ¼c. to ⅜c. higher; Pig Tin, car lots, 32½c.; small lots, 34½c.; Lead, Desilverized, 4.60c. to 4.65c., for 50-ton lots; Corroding, 4.85c. to 4.95c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 4.80c.; Cookson's Antimony, 10½c., and other grades, 9¾c. to 10¼c.; Sheet Zinc is $7, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 13½c.; Heavy Copper, 13¼c.; Copper Bottoms, 12c.; Copper Clips, 13¼c.; Red Brass, 12c.; Yellow Brass, 9½c.; Light Brass, 7c.; Lead Pipe, 4.30c.; Zinc, 3¾c.; Pewter, No. 1, 21c.; Tin Foil, 23c.; Block Tin Pipe, 25c.

Old Material.—The small tonnage of railroad material offered in this market last week brought better prices than it was expected would be secured. Some grades, in fact, realized top prices. One lot of 400 tons of No. 1 Wrought was taken at $14, delivered, equivalent to about $13.75, connecting line. Old Iron Rails are decidedly stronger and, from the tone of the market on these and Iron Fish Plates, it is believed that some of the prominent users of these materials are about to enter the market for a considerable tonnage. No. 1 Cast Scrap is firmer, while Stove Plate and Light Cast Scrap have sagged off about 25c. a ton. At least one of the local rolling mills is adding as opportunity offers to its stock piles, but the majority of these interests seem to be pretty well covered for present needs. The Iron foundries are buying a little more freely, but the consumptive demand is in no direction strong enough to warrant bullish sentiment in Old Material. Prices have in some instances been firmed up by the competition of dealers for material to cover short sales. Two lists of railroad material are out; one of 900 tons from the Chicago, Milwaukee & St. Paul and one of 3100 tons from the Northern Pacific. In the latter are 500 tons of Railroad Wrought and 500 tons of Rerolling Steel Rails. We quote per gross ton, f.o.b. Chicago, as follows:

Old Iron Rails	$18.00 to $18.50
Old Steel Rails, rerolling	16.00 to 16.50
Old Steel Rails, less than 3 ft.	15.00 to 15.50
Relaying Rails, standard sections, subject to inspection	20.00 to 21.00
Old Car Wheels	15.25 to 15.75
Heavy Melting Steel Scrap	13.00 to 13.50
Frogs, Switches and Guards, cut apart	13.50 to 14.00
Mixed Steel	10.25 to 10.75

The following quotations are per net ton:

Iron Fish Plates	$17.00 to $17.50
Iron Car Axles	19.00 to 19.50
Steel Car Axles	17.50 to 18.00
No. 1 Railroad Wrought	13.25 to 13.75
No. 2 Railroad Wrought	12.25 to 12.75
Railway Springs	13.00 to 13.50
Locomotive Tires, smooth	13.25 to 13.75
No. 1 Dealers' Forge	10.25 to 10.75
Mixed Busheling	8.25 to 8.75
Iron Axle Turnings	6.75 to 7.25
Soft Steel Axle Turnings	6.75 to 7.25
Machine Shop Turnings	6.75 to 7.25
Cast Borings	6.00 to 6.50
Mixed Borings, &c	5.75 to 6.25
No. 1 Mill	8.00 to 8.50
No. 2 Mill	7.00 to 7.50
No. 1 Boilers, cut to Sheets and Rings	9.00 to 9.50
No. 1 Cast Scrap	13.00 to 13.50
Stove Plate and Light Cast Scrap	11.75 to 12.25
Railroad Malleable	12.25 to 12.75
Agricultural Malleable	11.25 to 11.75
Pipes and Flues	9.75 to 10.25

St. Louis.

ST. LOUIS, September 12, 1908.

That important enlargements are under way, increasing the capacity of certain manufacturing plants, indicates confidence in the ability of the market to provide a demand for additional supplies in some lines. It is given out that the C. L. Gray Construction Company, which has the contract for erecting the La Salle Building, will soon place contracts for materials. It is to be a 14-story office building, to be erected at the corner of Broadway and Olive street, and to cost upward of $400,000. There is evidence of a greater degree of activity in the direction of preparing for the construction of the new St. Louis Bridge over the Mississippi River, and plans have been sent to the War Department for approval. The delay with respect to the erection of the bridge is unfortunate, but the city authorities are now seeking to obtain the views of the Government regarding the matter of location. It is reported that the American Steel Foundries will soon start up its Granite City Works. A large order for freight cars (part of which will be of steel) has been placed with the leading car builders here.

Coke.—While there are numerous inquiries for Coke, actual sales are of moderate volume. There is, however, an optimistic feeling, and leading sellers are believers in a more active demand. Orders on specifications are liberal. The market is firm and 1909 Coke is held at 25 cents per ton over the figures asked for 1908. We quote for Connellsville 72-hr. Foundry Coke, $2.25 to $2.50, at oven. The first half of 1909 commands a premium above delivery over the entire year.

Pig Iron.—Leading sellers state that they find their customers are ordering out freely; in fact, in some cases anticipating dates named in the specifications. Owing to the attitude of some of the principal producers, either having withdrawn from the market or asking a price which is out of line with current quotations, there is a firm feeling. Producers are also aware that sales have been considerably below the normal and a more urgent demand is liable to be witnessed in the near future. Inquiries for 1909 Iron are reported to be quite numerous, but business is restricted through lack of offerings and the disposition to hold for an advance. One house gives out the sale of a moderate quantity of 1909 Iron at $13.50. We quote for No. 2 Foundry $13 per ton f.o.b. Birmingham, shipment over the balance of 1908. It is believed that a good deal of Iron will be wanted in St. Louis territory, as it is reported that only about one-half the normal quantity has been placed.

Finished Iron and Steel.—The call for Structural Iron continues fairly good, both from local and country territory, but the sales are in small lots. There is a fair inquiry for Bars from jobbers and manufacturers. In railroad track material, Bolts, Spikes, Tees, Angles and Channels, &c., there is quite liberal inquiry. Standard Rails are dull, but coal and mining interests are buying Light Rails in moderate quantities. Machine castings are in slow demand.

Lead, Spelter, &c.—Lead is quiet but steady at 4.60c. The demand for corroding purposes continues good. It is thought there is no immediate prospect of material change in price. The Spelter market is firm. A leading producer

is asking 4.70c., and some smaller sales have been made at better figures. The demand is improving and the outlook is good. Ore at Joplin is quoted at $37 to $38. Tin is off in price, and, being weak statistically, tends to ease in tone. Antimony is ruling dull. Copper is being regarded optimistically, with gradual improvement expected as the fall season progresses. The demand for manufactures of Brass is fair.

Old Materials.—In the absence of any considerable demand from melters, the market at present is principally confined to transactions on the part of dealers. Prices show firmness, without any advance. The Missouri Pacific Railroad sold this week 1000 tons of material, which was taken by local dealers. The Vandalia Railroad closed out 700 tons of miscellaneous material. Relaying Rails continue scarce and are wanted. We quote as follows, per gross ton, f.o.b. St. Louis:

Old Iron Rails	$15.50 to $16.00
Old Steel Rails, rerolling	14.50 to 15.00
Old Steel Rails, less than 3 ft	13.75 to 14.25
Relaying Rails, standard sections, subject to inspection	22.50 to 23.50
Old Car Wheels	14.50 to 15.00
Heavy Melting Steel Scrap	13.00 to 13.50
Frogs, Switches and Guards, cut apart	13.00 to 13.50
Mixed Steel	11.00 to 11.50

The following quotations are per net ton:

Iron Fish Plates	$14.50 to $15.00
Iron Car Axles	17.50 to 18.00
No. 1 Railroad Wrought	12.50 to 13.00
No. 2 Railroad Wrought	11.50 to 12.00
Railway Springs	12.00 to 12.50
Locomotive Tires, smooth	13.00 to 13.25
No. 1 Dealers' Forge	10.50 to 11.50
Mixed Borings, &c	5.50 to 6.00
Machine Shop Turnings	8.00 to 8.50
No. 1 Boilers, cut to Sheets and Rings	9.50 to 10.00
No. 1 Cast Scrap	12.00 to 12.50
Stove Plate and Light Cast Scrap	10.50 to 11.00
Railroad Malleable	11.00 to 11.50
Agricultural Malleable	10.00 to 10.50
Pipes and Flues	8.75 to 9.50

The O'Brien Boiler Works Company states that while business was not so active in August as was the case in July, there is now more inquiry from both city and country sections for boilers.

The Westinghouse Air Brake Company finds the lumber business improving at the South, necessitating better railroad facilities, which is bringing about more demand for air brakes.

The L. M. Rumsey Mfg. Company reports the demand for lead pipe, sheet lead and plumbers' materials generally to be increasing, but the trade has been buying in small lots. As the repeat orders come often, the volume of business is of good proportions.

The Commonwealth Steel Company, being mainly dependent on railroads, is not able to run full and its line of orders is principally for repair work.

The Scullin-Gallagher Iron & Steel Company increased its working force September 1 and is likely soon to be running more nearly normal.

The Siebel-Suessdorff Copper & Iron Company finds a marked improvement over summer conditions; the demand is for Iron mainly and coming principally from Coal mines.

The Williams Patent Crusher & Pulverizer Company finds a good demand for its special machines, particularly for grinding alfalfa.

The Jos. F. Wrangler Boiler & Sheet Iron Works states that the local demand for boilers is somewhat better.

The Standard Stamping Company finds a disposition among its customers to buy in smaller lots than they usually order, but as they buy oftener, business aggregates quite a good volume.

The Ewald Iron Company states that the demand for its specialties—staybolts and engine bolts—is improving, and now that the railroad shops are open a still further enlargement of business from that source is looked for.

The American Air Brake Company reports being fairly busy on repair work, which is expected to lead up to new equipment business from railroads.

The Nixdorff-Krein Mfg. Company states that the demand for saddlery hardware is likely to be good this fall after the cotton crop begins to move. It is busy manufacturing its line of products in anticipation of the demand.

The Whitman Agricultural Company is entering upon the new season for agricultural implements with good prospects for keeping the plant busy.

It is stated that the infringement suit of Percy Donner against the American Sheet & Tin Plate Company will be tried in a short time at Washington, D. C. Mr. Donner makes the claim that the Bray continuous process of rolling sheets at the South Sharon plant of the American Sheet & Tin Plate Company is an infringement on his own patent, which the defendant company absolutely denies.

Pittsburgh.

PARK BUILDING, September 16, 1908.—(*By Telegraph.*)

Pig Iron.—There has been a little more inquiry for Pig Iron in the last few days, some sales of small lots having been made with larger tonnages pending. The Massillon Iron & Steel Company, Massillon, Ohio, has bought about 4500 tons of Nos. 1, 2 and 3 Foundry on the basis of about $14.75 to $15, $14.50 and $14, respectively. The Bucyrus Steel Casting Company has bought about 4000 tons of Basic for delivery over the next three or four months at about $14.50, Valley furnace, and the Westinghouse Machine Company has bought 500 to 600 tons of Nos. 1 and 2 Foundry. The Shenango Furnace Company, Sharpsville, has started its third stack, and Neville Island No. 1 stack of the American Steel & Wire Company has also been started. We quote Standard Bessemer Iron at $15, Basic and Malleable Bessemer $14.50, No. 2 Foundry $14.40 to $14.50 and Forge about $13.50, all at Valley furnace, the freight rate to Pittsburgh being 90c. a ton.

Steel.—A little greater movement is observed in Billets, several of the forges taking out more Steel on contracts, while some other Billet consumers are specifying more freely. Specifications against contracts for Sheet and Tin Bars have fallen off, especially on Tin Bars. Prices of Steel are firm, and we can report a sale of 1000 tons of Billets to a consumer in the Pittsburgh District at the full official price. We quote Bessemer and Open Hearth Billets, 3⅞ in. and larger, up to and including 0.25 carbon, $25; 0.26 to 0.60 carbon, $1 extra; over 0.60 carbon, $2 extra, all f.o.b. Pittsburgh. For Wheeling, Martins Ferry, Follansbee, Newcastle, Sharon, Steubenville and Washington (Pa.) delivery, half the freight, or 50c. additional, is charged. Sheet and Tin Bars in random lengths are $27, f.o.b. Pittsburgh. Forging Billets take $2 advance over Rolling Billets.

(*By Mail.*)

An inclination on the part of some jobbers, mostly in the West and Southwest, and at Pacific Coast points, to anticipate requirements on some lines of product, notably Sheets, Pipe and Wire products, is the most encouraging feature of an otherwise quiet week. On most lines, consumers are still buying from hand to mouth for current needs. So far this week there has been a perceptible gain in actual tonnage entered over the first two days of last week. There is a fair amount of buying in Pig Iron, but at low prices, which to some furnaces that are not strictly modern, and do not have their own supply of Ore and Coke, are below cost. The output of Pig Iron in the two valleys is a little better, the active stacks being Shenango Furnace Company three, Stewart Iron Company one, Pickands, Mather & Co., one, M. A. Hanna & Co., one, Ohio Iron & Steel Company one, and Struthers' Furnace Company one. The production is now running close to 14,000 tons a week and stocks on hand at the furnaces are a little less than 60,000 tons. Bessemer Iron is selling at about $15, Basic, and Malleable Bessemer at $14.50, and Northern No. 2 Foundry at about $14.50, all at Valley furnace, but on some No. 2 Foundry for Western shipment, the price has been shaded. There is a little freer movement in Billets, some of the Forges taking out more Steel, but in Sheet and Tin Bars the tonnage is falling off. In finished Iron and Steel, there is a fair volume of business, but it is getting so late in the year, with the Presidential election only about six weeks away, that the belief is pretty general that business will run along about as it is now until the result of the election is known. Some shading is being done in prices on a few lines, but the finished markets as a whole are fairly strong. A report of an official reduction of $2 a ton in Black and Galvanized Sheets was investigated and found to be untrue. Coke continues dull, and is selling at the lowest prices reached in some years. Scrap is neglected, and the tone of the market is weak.

Ferromanganese.—The market seems to be a shade easier, and we quote 80 per cent. foreign Ferro at $43 to $43.25, seaboard, the freight rate to Pittsburgh being $1.95 a ton. We note a sale of 50 tons at $43, and another sale of about 50 tons at the reported price of $43.25, seaboard.

Ferrosilicon.—While makers are firm, there is not much inquiry, and we quote 50 per cent. at $67.50 to $70, Pittsburgh.

Muck Bar.—Prices are merely nominal in the absence of any new business. We quote best grades, made from all Pig Iron, at about $25, Pittsburgh.

Wire Rods.—Active conditions in the Wire trade are reflected in Rods, which have been in fairly strong demand for some time. This applies both to Chain Rods and to Rods for drawing into Wire. We quote Bessemer Rods at $33; Basic, $34, and Chain Rods, $33, Pittsburgh.

Skelp.—There is not much inquiry, but a fair movement from the mills is noted on specifications against contracts. We quote: Grooved Steel Skelp, 1.45c. to 1.50c.; Sheared Steel Skelp, 1.50c. to 1.60c.; Grooved Iron Skelp, 1.60c. to 1.70c., and Sheared Iron Skelp, 1.70c. to 1.75c., f.o.b. Pittsburgh.

Steel Rails.—No large contract has been placed and none is in sight. The Carnegie Steel Company has taken an order for about 2700 tons of 60-lb. Rails for Idaho, but these will be rolled by the Illinois Steel Company. Some specifications have also come in against bookings. The Carnegie Steel Company took in the past week about 1000 tons of Light Rails. No. 3 Rail mill at the Edgar Thomson plant is down this week, while Nos. 1 and 2 are running to about 35 per cent. of capacity. Prices on Light Rails seem to be firmer, and one or two mills are refusing to accept orders that at the prices offered they would probably have taken a month or two ago. Prices on new Light Rails, which continue to be shaded about $2 a ton by Rerolling Rail mills, are as follows: $25 for 25 to 45 lb. Sections, with $1 advance for 20 lb., $2 advance for 16-lb. and $3 advance for 12-lb. Standard Sections are $28, at mill, and Angle Splice Bars, 1.65c., at mill.

Structural Material.—The Fort Pitt Bridge Works was the lowest bidder on the Steel bridge to cross the Monongahela River at Monongahela City, Pa., its bid having been $163,900. The bridge will take about 2700 tons, and while the contract has not been actually placed, it will likely go to this interest. The Pittsburgh Bridge & Iron Company has taken a Steel building for Spang, Chalfant & Co., 285 tons, and the McClintic-Marshall Construction Company has taken about 500 tons for the Standard Oil Company. Some large inquiries are in the market from railroads for bridges, one for Hackensack, N. J., about 2000 tons, and another for a Western road, about 4000 tons. Bids on these two structures will go in in about a week. We quote, f.o.b. mill, Pittsburgh: I-Beams, H-Beams and Channels, 3 to 15 in., inclusive, 1.60c., net; Beams over 15 in., 1.70c., net; Angles, 3 to 6 in., inclusive, ¼ in. and up, 1.60c., net; Angles, over 6 in., 1.70c., net; Angles, 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, Steel Bar card; Tees, 3 in. and up, 1.65c., net; Zees, 3 in. and up, 1.60c., net; Angles, Channels and Tees under 3 in., 1.50c., base, half extras, Steel Bar card; Deck Beams and Bulb Angles, 1.90c., net; Hand Rail Tees, 3c., net; Checkered and Corrugated Plates, 3c., net.

Plates.—The Carnegie Steel Company has taken about 6000 tons of Plates for lock bar Pipe for an extension to the water works system at Springfield, Mass. No other large work has come up. All the Plate mills are short of orders, and able to run to only about 50 per cent. of capacity. There is some irregularity in prices, which are being shaded in some cases from $1 to $2 a ton. This is being done mostly by mills that roll only the narrow sizes. Regular prices are as follows: Tank Plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.60c., base, at mills, Pittsburgh. Extras over this price are as follows:

Tank, Ship and Bridge quality, ¼ in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered ¼-in. Plate. Steel Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel Plates over 72 in. wide ordered less than 11 in. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on Plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3-16-in. Plates on thin edges	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
"A. B. M. A." and ordinary Firebox Steel Plates	.20
Still Bottom Steel	.30
Marine Steel	.40
Locomotive Firebox Steel	.50
Shell grade of Steel is abandoned.	
For widths over 100 in. up to 110 in	.05
For widths over 110 in. up to 115 in	.10
For widths over 115 in. up to 120 in	.15
For widths over 120 in. up to 125 in	.25
For widths over 125 in. up to 130 in	.50
For widths over 130 in	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.50c., f.o.b. Pittsburgh.

Sheets.—The American Sheet & Tin Plate Company has received an order for 430 tons of 26 gauge Galvanized Sheets, 27 x 110, for shipment to Canada, for box car roofs. This company has developed a considerable trade in Galvanized Sheets for this purpose and is also doing quite an export business in Black and Galvanized Sheets, making regular shipments to Africa, Australia, Russia and South America. It is running about 60 per cent. of its Sheet mill capacity and reports an increasing demand. There is some cutting in prices, but as a rule this does not exceed $2 a ton. For shipment from mill regular prices are as follows: Blue Annealed Sheets, No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets: Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c.; No. 28, Painted Roofing Sheets, $1.75 per square, and Galvanized Roofing Sheets, No. 28, $3.10 per square, for 2½-in. corrugations. These prices are subject to rebate of 5c. per 100 lb. to the large trade under the usual conditions, jobbers charging the usual advances for small lots from store.

Tin Plate.—Very little new business is coming in, and shipments by the mills now represent specifications against contracts taken early in the year. The American Sheet & Tin Plate Company is operating about 45 per cent. of its Tin Plate capacity, having started up last week in full its Laughlin Works at Martins Ferry, Ohio, which contains 23 hot mills; but the Sabraton Works, at Morgantown, W. Va., was shut down on account of lack of water. As a rule the independent Tin Plate mills are running to about 50 per cent. capacity. One leading mill was shut down all of last week, but is operating six mills this week. Some shading is being done in prices of Tin Plate, but so far this is not serious. We quote $3.70 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

Hoops and Bands.—A fair amount of new business is coming in, but the mills are running mostly on specifications against contracts. It is said that work will be pushed actively on the new Steel Hoop mill to be erected by Frank L. Clark and his associates at Punxsutawney, Pa. We are advised that regular prices are being maintained at follows: Steel Hoops, 1.80c., base, full Hoop card prices; Steel Bands, 1.40c., base, half Steel card extra, all f.o.b. cars Pittsburgh, in carload lots, for delivery during 1908.

Bars.—A slightly larger tonnage of Iron Bars is being entered by the mills, and they are being operated to fuller capacity. Specifications against contracts for Steel Bars are coming in at a fairly satisfactory rate, but new business is light, as most consumers covered some time ago. The leading makers of Steel Bars are said to be operating to about 60 per cent. of capacity, and are shipping out their products as fast as made. We are advised that regular prices on both Iron and Steel Bars are being maintained. We quote Iron Bars at 1.40c., base, for Pittsburgh delivery, and 1.35c., base, for Western points, to which freight is added, except Chicago, the price for which is 1.50c., delivered. We quote Steel Bars at 1.40c., Pittsburgh, for base sizes.

Merchant Steel.—While little new business is being placed with the mills, a fairly satisfactory volume is coming in in specifications against contracts. The implement makers will soon be busier than they are now, and as they are the largest consumers a heavier demand for Tire and other Steels is looked for as the season advances. The demand for Shafting continues quite active, and two or three of the leading makers have more tonnage on their books than for some months. We quote Cold Rolled Shafting at 57 per cent. off in carloads and 52 per cent. in less than carloads, delivered in base territory. Prices are as follows: Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher price being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.; Tire Steel, Iron finish, 1½ x ½ in. and heavier, 1.40c.; under 1½ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b. at mill.

Railroad Spikes.—The mills are short of work on the standard sizes. The Great Northern inquiry for a round tonnage of Railroad Spikes referred to last week has not yet been placed. The demand for the smaller sizes of Spikes is active, and on these the mills have some work ahead. We quote: Standard sizes, 4½ x 9-16 in., at $1.70, and the smaller sizes at $1.80 per 100 lb. in carload and larger lots, with an advance of 5c. per 100 lb. for less than carload, f.o.b. Pittsburgh.

Spelter.—The tone of the market is slightly firmer, and prime grades of Western Spelter are now held at about 4.60c., East St. Louis, equal to 4.72½c., Pittsburgh.

Merchant Pipe.—A slow but steady increase is noted in new business in Merchant Pipe, and the leading mills are able to operate to about 60 per cent. of capacity. On the larger sizes they are pretty well filled up, some large gas and oil lines requiring a heavy tonnage having recently been placed. We are advised that prices on Steel Pipe are being fairly well maintained, but on Iron Pipe some cutting is being done. Discounts on Steel Pipe, ¾ to 6 in., to the large trade are now 76 and 5 per cent. off list. Regular discounts are as follows:

Merchant Pipe.

	Jobbers, carloads, Steel. Black.	Galv.
	%	%
⅛ to ¼ in	67	51
⅜ in	69	55
½ in	71	59
¾ to 6 in	75	65
7 to 12 in	72	57
Extra strong, plain ends:		
⅛ to ⅜ in	60	48
½ to 4 in	67	55
4½ to 8 in	63	51
Double extra strong, plain ends:		
½ to 8 in	56	45

Discounts on Genuine Iron Pipe are as follows:

	Black.	Galv.
	%	%
¼ to ¼ in	65	..
⅜ in	67	53
½ in	69	57
¾ to 6 in	73	63
7 to 12 in	70	55
Extra strong, plain ends:		
⅛ to ¾ in	58	46
½ to 4 in	65	53
4½ to 8 in	61	49
Double extra strong, plain ends:		
½ to 8 in	54	43

Boiler Tubes.—A slightly heavier demand for Merchant Tubes is taken to indicate that the boiler shops are probably getting a little busier. The railroads are not placing much business in Railroad Tubes, only a few orders coming out for small lots for actual needs. Regular discounts on Merchant Tubes in small lots, on which an extra 5 per cent. is allowed in carloads, but which discounts are being shaded, are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ in	42	47
1¾ to 2¼ in	42	59
2½ in	47	61
2¾ to 5 in	52	65
6 to 13 in	42	59

2½ in. and smaller, over 18 ft. long, 10 per cent. net extra.
2¾ in. and larger, over 22 ft. long, 10 per cent. net extra.

Iron and Steel Scrap.—The market is exceedingly quiet, large consumers being pretty well covered. Prices are showing an easier tone, and it is probable that on a firm offer, and for any large tonnage, our prices could be shaded. We quote Heavy Steel Scrap, for Pittsburgh, Sharon, Steubenville, Follansbee and Monessen delivery, at $14.25 to $14.50, while Heavy Steel Scrap, for hand charged Open Hearth furnaces, and for pieces weighing 10 lb. minimum and 300 lb. maximum, is $1 a ton higher. Dealers quote on other grades of Scrap as follows: Cast Iron Borings, $8.75 to $9; Bundled Sheet Scrap, $12.25 to $12.50; No. 1 Cast Scrap, $14.25 to $14.50; No. 1 Railroad Wrought, $15 to $15.25; No. 1 Busheling Scrap, $13.50 to $14; No. 2, $10 to $10.25; Sheet Bar Crop Ends, $17.50 to $18. There is a heavy demand for Iron Axles, and this is the only product on the whole list that has advanced in price. We quote these at $22 to $22.50, and they are firm. Steel Axles are $19; Low Phosphorus Melting Stock, $18.50 to $19; Rerolling Rails, $16 to $16.25; Machine Shop Turnings, $9.50 to $9.75; Railroad Malleable, $14; Grate Bars, $12.25 to $12.50; Old Car Wheels, $14.50 to $14.75, all in gross tons.

Coke.—We do not find any improvement either in demand or prices. The secretary of the Independent Coke Producers' Association reports that out of a total of 36,645 ovens owned by independent operators, 19,084 were in blast last week and 17,561 were idle. Coke plants are suffering severely from the long dry spell, and many works are unable to get water enough to operate. The Frick Coke Company operated last week 10,753 ovens out of a total of 19,675, or a percentage of 54.7 in operation. Prices of Coke continue low and do not afford much profit to the operator. Strictly Connellsville Furnace Coke for prompt shipment can still be had at about $1.50 a ton at oven, while for balance of this year shipment $1.65 is asked. For delivery over first half of next year quotations on Furnace Coke range from $1.75 up to $1.90, at oven. The output of Coke in the Upper and Lower Connellsville regions is running about 200,000 tons a week.

H. A. Ross, N. A. Ross and C. C. Morrison, all of Pittsburgh, have applied for a charter of incorporation as the Henry A. Ross Company, with a capital of $25,000, to buy and sell Iron and Steel, Coke and Railroad Supplies. The offices will probably be located in the German National Bank Building, Pittsburgh.

Birmingham.

BIRMINGHAM, ALA., September 14, 1908.

Pig Iron.—The volume of business transacted in this market in the past fortnight is comparatively small. A very limited proportion of recent inquiries has resulted in sales. Especially is this true in cases where Northern competition has featured, and the outlook is not indicative of a material improvement in the demand for some weeks. The established schedule of prices has been adhered to, and, as evinced by the result of negotiations in quarters where other Irons were available, practically no departures from the basis have been effected. Among the sales reported is a lot of 800 tons of Foundry grades for delivery covering the first quarter of next year. This is the only transaction of its kind yet recorded, and the price consideration was $14, Birmingham, on a No. 2 Foundry basis. So far as can be ascertained, all quotations elicited for deliveries early in 1909 have been on a basis of $14, but producers are not solicitous of such engagements, and prospective purchasers fail to manifest the interest that has been expected. In view of the number of requests that shipment against recent contracts be deferred, there is some question as to what extent melters' requirements warrant additional purchases, although the actual melt has increased, and some old contracts have been reinstated within the past week. Preparations for an increase in the rate of production are very much in evidence, and five additional stacks will no doubt be available at an early date. Of this number, if blown in promptly, probably three furnaces would represent a surplus output, but it is hardly probable that the increase will exceed the requirement for actual commitments. There seems to prevail with all parties concerned in the trade a disposition to await developments, and it is very likely that the status of the market will be unchanged until general conditions are more determined.

Cast Iron Pipe.—Following the advance in price of raw material and of finished articles, Southern producers of Cast Iron Pipe have advanced quotations $1 per ton on all sizes. The majority of orders recently placed were at figures around those established by the advance, but in the absence of round tonnage considerations, values have hardly been indexed. A contract for the city of Cleveland, Ohio, to involve some 3000 tons of Water Pipe, will be awarded September 21, and will no doubt determine the strength of quotations now in existence. There have been a number of inquiries from leading Southern cities, and the outlook is considered good for considerable activity early next year. The resumption of operations at the only idle Southern plant, which is announced for September 15, will increase the output to normal. We quote Water Pipe as follows per net ton, f.o.b. cars here: 4 in. to 6 in., $24; 8 in. to 12 in., $23; over 12-in., average, $22, with $1 per ton extra for Gas Pipe. On large contracts these prices are probably shaded.

Old Material.—The asking price of dealers has been further advanced on No. 1 Railroad Wrought and Light Cast as the result of scarcity of these grades. Quotations on other grades are being adhered to firmly, but the aggregate of sales reported indicates a less active market. Recent addition to stocks is small and accumulations are apparently without effect in the adjustment of values asked. We quote dealers' asking price as follows, per gross ton, f.o.b. cars here:

Old Iron Rails	$14.50 to $15.00
Old Iron Axles	15.50 to 16.00
Old Steel Axles	13.00 to 13.50
No. 1 Railroad Wrought	13.50 to 14.00
No. 2 Railroad Wrought	10.50 to 11.00
No. 1 Country Wrought	11.00 to 11.50
No. 2 Country Wrought	9.50 to 10.00
No. 1 Machinery	11.00 to 11.50
No. 1 Steel	9.50 to 10.00
Stove Plate and Light Cast	9.50 to 10.00
Cast Borings	5.00 to 5.50

San Francisco.

SAN FRANCISCO, CAL., September 8, 1908.

The market on the various lines of Iron and Steel manufactures has taken a slight change for the better, and the outlook shows more promise than for several months. While there is still little movement in some lines, a stronger tendency is observed to anticipate future needs, and finished Iron and Steel are in fair demand. After a quiet month the local building situation has developed a favorable turn, and a few of the larger mines are coming into the market for Drill Steel, of which the Alaska Treadwell mine ordered a carload last week. The majority of the mines, however, still have large stocks of Drill Steel, bought some time ago, and are purchasing only in a sorting up way for immediate needs. The demand for mining machinery has not increased materially. Railroad supply business is also limited, and while a number of plans for new construction are being made, none of much importance are being carried out. There is an increasing demand for pumping machinery, as a number of municipalities are installing new water plants and fire protection systems.

Structural Material.—The amount of new building started in San Francisco in August, as shown by the building permits, makes rather a poor exhibit as compared with the July record. While the number of permits showed only a small decrease, the valuation was $2,140,420, in comparison with $3,139,027 for July, indicating a considerable falling off in large buildings. Comparatively few contracts were let during the month for fabricated Steel for Structural work, and some of the local dealers saw little encouragement in the outlook. Since August 28, however, quite a lot of contracts have been let for Steel to be used in building, and the prospect is for a considerable improvement this month. Contracts for Structural Steel have been let in the last two weeks for the Crocker Estate Building on Post street, and the Liebes Building adjoining; the Bankers' Investment Company's Building, the Hillsburg Estate Building and the Hobart Estate Building, all large class A structures, in addition to a large amount of smaller work. Work is to be commenced soon on a 14-story Steel frame structure on a lot belonging to D. Hughes at the southwest corner of Sixth and Market streets, the contract for which will be let shortly. The demand for ornamental Cast Iron shows some improvement, several large buildings having elaborate fronts of this material. The Merle Ornamental Iron & Bronze Company has

taken a $50,000 contract for the ornamental Ironwork for the Emma Rose Building.

Wire Rope.—Locally the Wire Rope market is quiet, though there is more immediate demand in the northern and southern parts of the State. About the only business of any consequence here at the present time is for elevator construction, and this, in view of the increased activity in building, is expected to improve shortly.

Pig Iron.—Little, if any, increase in activity has developed among the foundries, and with large stocks on hand little spot buying is done. As few of the foundries will need any additional supplies for several months they can be interested only by the most tempting offers. Prices are not well established, as several holders have shown a disposition to cut. A few foundries, however, are beginning to place orders in anticipation of next spring's requirements. No. 1 Scotch Pig Iron is being offered for spring delivery at about $23.50 per ton, with about the same figure for No. 1 English and No. 1 Chinese. A shipment of 634 tons of Chinese Pig Iron arrived here last week.

Coke.—This market is overloaded with Coke and the demand is light. Foreign Coke, small lots of which arrive from time to time, is quoted at from $12 to $14 per ton.

Merchant Pipe.—The local market for Merchant Pipe remains comparatively inactive. The hot weather of the past month has interfered somewhat with activity in the California oil fields, but a better demand for oil well supplies is looked for this month. Discounts on jobbers' carloads show no change, being quoted as follows:

	Steel. Black. %	Steel. Galv. %
⅛ to ¼ in.	56.5	40.5
⅜ in.	58.5	44.5
½ in.	60.5	48.5
¾ to 6 in.	64.5	54.5
7 to 12 in.	61.5	46.5
Extra strong, plain ends:		
⅛ to ⅜ in.	49.5	37.5
½ to 4 in.	56.5	44.5
4½ to 8 in.	52.5	40.5
Double extra strong, plain ends:		
½ to 8 in.	45.5	34.5

Cast Iron Pipe.—There is now a fair movement of Cast Iron Pipe in the State, though the demand is larger in the South and the interior than locally. There is a general movement among the smaller towns in preparation for the installation or enlargement of water systems, while several towns intend to put in additional systems for the use of their fire departments. Some contracts have already been let for these purposes and a large number are in prospect. Several contracts are also announced for the Los Angeles aqueduct. The Lacy Mfg. Company recently received a contract for $20,000 worth of Pipe, and later for a lot of 18-in. Pipe worth $2270. The Baker Iron Works took a contract for a lot of 12-in. Pipe for $4020. The San Francisco Supervisors have returned from a visit to the proposed reservoir sites at Hetch Hetchy and Lake Eleanor, and are now negotiating for the purchase of adjacent lands. The investigation of the proposed Sierra water supply for San Francisco is progressing slowly, however, and the outcome is still uncertain.

Old Material.—The Scrap business is about at a standstill, with practically no demand for any description. There is still considerable old Structural Steel in the city, but there is no movement worth mentioning. Old Wrought Iron brings about $10 per ton; Pipe, $5; Cut Pipe, $8, and Cast Iron $15.

The railroads have issued the new Western classification, which becomes effective November 1, showing a number of increases in minimum carloads. The change covers the following: Iron and Steel articles, Castings, Pig Iron, Sash Weights, Sheet Iron, Shingle Bands, Nails, Oil Well Supplies and Rails. On most of these articles the minimum is raised from 30,000 to 36,000 lb., but Pig Iron is raised to 50,000 lb., Sash Weights and Rails to 40,000 lb. and Oil Well Supplies from 24,000 to 30,000 lb.

The San Pedro Foundry & Machine Company has been incorporated in Los Angeles, with a capital stock of $50,000, by T. P. Faulconer, S. Faulconer and J. H. Brakeman.

A meeting of the stockholders of the San Francisco Bridge Company has been called for November 5, for the purpose of increasing the capital stock from $250,000 to $500,000. It is also proposed to reduce the number of directors from five to three and to increase the scope of the business.

The Pacific Tank Company has purchased an 8-acre tract on the tidal canal in Alameda, Cal., where it will erect a rolling mill, to be operated in connection with the oil tank department.

The Price Pump Mfg. Company, San Francisco, is planning to remove its plant to Sacramento, Cal., where an offer has been made of 14½ acres of land with a river frontage. The negotiations have not been concluded, however, as there has been some difficulty in securing the land.

A large shipment of stock Pipe purchased in Europe for the plant of the Great Western Power Company at Big Bend has commenced to arrive.

The California Metal Trades Association is mailing letters to architects and owners of lots in San Francisco, asking them to favor the local dealers in Structural Steel and Iron where possible, on the ground that the local men are not given a square deal by the railroads. It is claimed that if a proper differential were given in favor of plain material the local manufacturers would be able to meet Eastern prices for materials delivered in this city without difficulty. The dealers intend to take up the matter at the next railroad conference and expect to secure the differential desired.

Cincinnati.

CINCINNATI, OHIO, September 16, 1908.—(*By Telegraph.*)

A general view of the Iron and Steel markets in this territory reveals a situation that may best be termed sluggish, although prices of Pig Iron are quite firm and sellers throughout the Central West are convinced that the last quarter will show up as good as if not better than any of its predecessors in the current year. The first half of the month in machinery lines finishes with less new business booked than in the last half of August. The melt of Iron, however, seems to be progressing favorably from the record of shipments, and that furnacemen believe in an early improvement is seen in the announcements of furnaces going in blast and the maintenance of prices, especially by the Southern makers. Indications point to an increasing activity in machinery lines, in St. Louis territory especially, and some recent heavy buying on the part of the Pipe concerns indicate that that branch of the trade is in good condition. The Scrap dealers are still forcing prices upward. All are carrying heavy stocks in their yards and are confidently expecting an expansion in business after the election.

Pig Iron.—The sale in this market of a tonnage of Southern Iron, with deliveries extending through the first half of next year, at $13, Birmingham, for No. 2, gives the first intimation of what consumers will be able to do for 1909 needs. In Northern Irons a number of sales have been made of No. 2, extending into next year, at the present ruling price of $15, Ironton. A number of leading interests continue to refuse to quote on first quarter or half requirements, and practically all are holding for $13, Birmingham, for last quarter delivery, and some announce that they are booked up to the close of the year. At the present stage of the market Northern Irons are getting more attention, and the inquiries out to-day will unquestionably result in a preponderance of business for Northern furnaces. Indicating that some one of the three important interests in this territory overestimated its needs for Basic in the speculative buying earlier in the year, it is reported that considerable resale Basic is on the market at about $12, Birmingham. High Silicons are still quotable at $18.50 for 8 per cent. The largest Pipe interest is credited with a recent purchase of Southern Iron, Nos. 3 and 4, and Forge, at $12, $11.50 and $11, respectively, 1000 tons of each, for prompt delivery. Another important Ohio Pipe interest is in the market to-day for 4500 tons of Nos. 2, 3 and 4 for next 30 days' delivery. Northern furnaces are expected to take this business, as very favorable freight rates prevail, and at present prices of Southern Iron the purchaser can save something like 95c. a ton. A large car manufacturing concern wants prices on a small shipment of special Iron for its Michigan plant. A Kentucky jobbing foundry is in the market for 500 tons of Virginia and Ohio Iron for delivery in the next five or six months. A local Steel maker wants 300 tons of Low Phosphorus Iron for prompt shipment. A central Ohio melter asks for a price on 200 tons of Foundry Iron for the first half. For early delivery and balance of the year, we quote, f.o.b. Cincinnati, the freight rate being $3.25 from Birmingham and $1.20 from the Hanging Rock District, as follows:

Southern Coke, No. 1	$16.25 to $16.75
Southern Coke, No. 2	15.75 to 16.25
Southern Coke, No. 3	15.25 to 15.75
Southern Coke, No. 4	15.00 to 15.50
Southern Coke, No. 1 Soft	16.25 to 16.75
Southern Coke, No. 2 Soft	15.75 to 16.25
Southern Coke, Gray Forge	14.25 to 14.75
Ohio Silvery, 8 per cent. Silicon	19.70
Lake Superior Coke, No. 1	16.70 to 17.20
Lake Superior Coke, No. 2	16.20 to 16.70
Lake Superior Coke, No. 3	15.70 to 16.20
Standard Southern Car Wheel	22.25 to 22.75
Lake Superior Car Wheel	21.75 to 22.25

(*By Mail.*)

Coke.—As predicted, the settlement of the Alabama strike difficulties has produced an effect on the price of the Virginia product, and while last week some sales were made of Furnace Coke at $1.85, at oven, this week some shipments have been made at $1.75, and the range is $1.75 to $1.85 for the balance of the year. Sellers are asking $2 for the first half. Virginia Foundry is quotable at $2.10 to $2.25. Pocahontas Furnace Coke for this year's delivery is easy at $1.55 to $1.60; for deliveries in 1909 no prices are obtainable. Pocahontas Foundry is selling at $2. Connellsville Furnace Coke is being quoted for the first half of next year at $2.25, a prohibitive price, as 72-hr. Foundry is rang-

ing at $2 to $2.25. There is very little inquiry for any kind of Coke at this time, although shipments on contracts are going forward promptly and hold-ups are few.

Finished Material.—Reports from the dealers indicate very little going on in finished lines, and the rather sudden slump in specifications and large orders leads dealers to feel that the political situation is responsible. There is a little better demand for Hoops because of the timeliness of the barrel making season and the improved prospects for distillers. In sympathy somewhat with the rising markets in Old Material there seems a little more strength in Bar Iron. Dealers' prices to the trade f.o.b. Cincinnati are as follows: Iron Bars, carload lots, 1.65c., base, with half extras; small lots from store, 1.85c., base, half extras; Steel Plates, carload lots, 1.75c., base, with half extras; small lots from store, 1.85c., base, half extras; Base Angles, carload lots, 1.85c., base; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, ¼-in. and heavier, carload lots, 1.85c.; small lots from store, 2c.; Blue Annealed Sheets, heavy, No. 16, carload lots, 2.15c.; small lots from store, 2.50c.; No. 14, carload lots, 2.05c.; small lots from store, 2.40c.; No. 10 and heavier, carload lots, 1.95c.; small lots from store, 2.20c.; No. 12, carload lots, 2c.; small lots from store, 2.30c.; Sheets (Light), Black, No. 28, carload lots, 2.65c.; Galvanized Sheets, No. 28, carload lots, 3.70c.; Steel Tire, 4-in. and heavier, carload lots, 1.95c.; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.20c.

Old Material.—It is purely a dealers' market and the large houses are driving for higher prices. There is some shrewd trafficking going on between dealers, with but little participation on the part of the consumers. The dealers are confidently expecting a big movement after election. We quote dealers' prices to the trade as follows, f.o.b. Cincinnati:

No. 1 R. R. Wrought, net ton	$12.50 to $13.50
Cast Borings, net ton	5.00 to 5.50
Heavy Melting Steel Scrap, gross ton	14.00 to 15.00
Steel Turnings, net ton	6.00 to 7.00
No. 1 Cast Scrap, net ton	12.00 to 13.00
Burnt Cast, net ton	9.00 to 10.00
Old Iron Axles, net ton	16.50 to 17.50
Old Iron Rails, gross ton	15.00 to 16.00
Old Steel Rails, short, gross ton	13.00 to 14.00
Old Steel Rails, long, gross ton	12.50 to 13.50
Relaying Rails, 56 lb. and up, gross ton	20.50 to 21.50
Old Car Wheels, gross ton	13.00 to 14.00
Low Phosphorus Scrap, gross ton	14.00 to 15.00

Philadelphia.

PHILADELPHIA, PA., September 15, 1908.

Buying in the local market has been a shade less active. The tone continues strong, and the higher prices asked last week by sellers of Pig Iron were realized in a number of cases. Orders aggregate a fair tonnage for delivery during the remainder of the year, and while no strong buying movement is anticipated prior to the coming national election, it is believed that more active conditions will prevail somewhat later in the year. That there will be an increased production of Pig Iron in this territory in the near future is unquestioned. The Warwick Iron & Steel Company will blow in its No. 2 furnace, with a capacity of 15,000 tons a month, about October 1. It has been out for the past nine months. Several other producers in the Lehigh and Schuylkill valleys are seriously considering the blowing in of increased capacity. The Everett Furnace was blown in during the week. The finished material market is somewhat dull. The demand for Steel Plates is probably not so strong, while Structural Material shows little improvement. Billets have been quiet, but the demand for Sheets about holds its own. The same strength as has developed in the Pig Iron market has not been experienced in that for Finished Iron and Steel.

Pig Iron.—Sales have usually been in small and moderate lots, both for prompt shipment and for delivery over the balance of the year, with an occasional sale for delivery running over into the first quarter of next year. Somewhat better prices have been realized for the Foundry grades, and it is now practically impossible to get standard grades of No. 2 X under $16.75, delivered, while some few sellers hold as high as $17.25 for delivery the balance of the year. The recent higher asking prices appear to be pretty firmly maintained, and it is extremely difficult to get concessions, except on off grade Irons. Sellers in the majority of cases still withhold quotations for deliveries in the first quarter and half of 1909. In some cases business has been done, sales of lots of a few hundred tons for first quarter shipment being reported at $17.25, delivered. Pipe foundries are still in the market for low grade Irons. Several inquiries for round lots which have been before the trade recently are still unclosed, while one lot of 3000 tons for delivery the balance of the year was sold, the reported price being $15.50, delivered. Virginia Foundry Irons have been sold in moderate lots for prompt shipment, at $17, delivered, in this territory. Several producers, however, have practically withdrawn quotations for deliveries extending beyond the next 30 days. Little business has been done in Southern Iron, for which sellers maintain prices firmly and at the present level of $13, Birmingham, for No. 2 Foundry, are practically out of the market. Forge Iron has been somewhat more active. A number of inquiries for moderate tonnages are before the trade, and some sellers who are pretty well sold up on this grade have rather high ideas regarding price. The most important sale during the week was a lot of 2000 tons for delivery over the balance of the year, at $15, furnace, equivalent to $15.50, delivered, in this territory. Steel making Irons have been rather quiet. Melters are making inquiries for Basic for delivery in the first half of next year, but few sellers have made up their minds as to what would be a fair price. One producer is reported as being willing to take a moderate tonnage at $16, delivered, but others are known to have higher ideas regarding prices. Some considerable business is known to be under consideration, but has not developed far enough as yet to be tangible. Low Phosphorus Iron has not been in urgent demand. Some sellers who have Iron of this grade on hand would do business at somewhat lower figures than recently quoted, the ruling quotations of such sellers being from $20 to $20.50. Generally speaking, prices are stronger, and consumption appears to be gradually increasing. A number of sellers report increased shipping instructions, and stocks on furnace banks in this territory continue to be reported as decreasing. Orders during the month are reported larger in the aggregate—how much is not known at the time—but information showing what the increase has been and how much stocks have declined in this territory will probably be available after the coming meeting of the Eastern Pig Iron Association, which will be held in this city the current week. Under the circumstances sellers feel warranted in making an advance in price, without which a number of concerns contend they will not increase their output. A considerable variance is to be noted as to what the different producers consider a fair price, and there is consequently a greater range in quotations on some grades. For delivery in buyers' yards, eastern Pennsylvania and nearby territory, during the next 60 or 90 days, the following range of prices is quoted:

Eastern Pennsylvania, No. 2 X Foundry	$16.75 to $17.00
Eastern Pennsylvania, No. 2 Plain	16.25 to 16.50
Virginia, No. 2 X Foundry	17 00
Virginia, No. 2 Plain	16.50 to 16.75
Gray Forge	15.50
Basic	15.25 to 15.75
Low Phosphorus	20.00 to 20.50

Ferromanganese.—Business has been quiet. Some fair lots are being inquired for, but current orders have been confined to scattered carload lots. No further forward business has been transacted. For prompt shipment prices are a shade easier, at $42.50 to $43, Baltimore, with forward Ferro at $43 to $43.50.

Steel Billets.—A slight improvement is to be noted in the demand for Billets. Orders continue small and largely for prompt shipment, but the aggregate tonnage coming out is somewhat heavier. Quotations for delivery in this territory are unchanged, with ordinary Rolling Steel at $26.20 and Forging Steel at $28.20, subject to the usual extras for high carbons and special sizes.

Plates.—The demand for Steel Plates has not been quite so urgent. The bulk of the business placed has been for small tonnages for prompt shipment, and is of a miscellaneous character. The situation is somewhat unsatisfactory. Secret price cutting has been hinted at, and one producer has expressed his intention of meeting any reduction made. A meeting of the leading Steel Plate makers will be held during the week, when it is expected that this matter will be taken up. Meanwhile prices for delivery in this territory are quoted as follows:

	Carloads. Cents.	Parts carload. Cents.
Tank, Bridge and Boat Steel	1.75	1.80
Flange or Boiler Steel	1.85	1.95
Commercial Firebox	1.95	2.00
Marine	2.15	2.20
Locomotive Firebox Steel	2.25	2.30

The above are base prices for ¼-in. and heavier. The following extras apply:	Extra per 100 lb.
3-16-in. thick	$0.10
Nos. 7 and 8, B. W. G	.15
No. 9, B. W. G	.25
Plates over 100 to 110 in	.05
Plates over 110 to 115 in	.10
Plates over 115 to 120 in	.15
Plates over 120 to 125 in	.25
Plates over 125 to 130 in	.50
Plates over 130 in	1.00

Structural Material.—The demand does not improve rapidly. Local business is confined to small lots for building and general purposes. Some fair sized bridge and building work is being figured on, but develops slowly. The Pennsylvania Steel Company has, it is understood, taken some bridge work for the Middle West, requiring some 2400 tons, and orders are expected to be placed shortly for Structural Material entering into the construction of three colliers for the Government, for which orders were recently placed with the Maryland Steel Company. Prices are unchanged, 1.75c. to 1.90c. being quoted, according to specification for delivery in this territory.

Sheets.—An improved demand continues to be noted by Sheet mills. The individual orders are not large, but in the aggregate amount to a somewhat better tonnage, and some of the mills are now fairly well occupied, but are dependent on current business to maintain the present rate of production. For mill shipment the following range of prices is quoted, a tenth extra being added for small lots: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—The market is hardly as active as it was some weeks ago. Buyers' requirements are becoming pretty well taken care of and hesitancy is still shown regarding business for future needs. Mills continue on about an even basis, and prices are being fairly well maintained. For delivery in this territory 1.45c. to 1.50c. can be done for Refined Iron Bars, although some sellers still hold at 1.55c. The demand for Steel Bars is quiet and prices are unchanged at 1.55c., delivered, with Rerolled Bars at 1.50c., delivered in this territory.

Coke.—The demand is not active. Some little business has been done, but no disposition is shown by buyers to come into the market heavily. Foundry Coke is quiet, but more business is stirring in Furnace Coke, due to the increased blowing in of blast furnaces. Prices are practically unchanged, Foundry Coke being quoted at $2 to $2.25 at oven, with Furnace Coke at $1.50 to $1.75, at oven. For delivery in this territory quotations range as follows:

Connellsville Furnace Coke	$3.65 to $3.90
Foundry Coke	4.15 to 4.40
Mountain Furnace Coke	3.25 to 3.50
Foundry Coke	3.75 to 4.00

Old Material.—Consumers of Heavy Melting Steel have expressed their willingness to pay $15, delivered, for this grade of Material, but sellers are as a rule holding for higher prices. One round lot for fairly prompt shipment is reported to have been sold at $15.50. Some grades of Rolling Mill Scrap show an advance, particularly Borings, while other grades are stiffer on small sales. Prices for prompt delivery in buyers' yards, eastern Pennsylvania and adjoining territory, are nominally quoted as follows:

No. 1 Steel Scrap and Crops	$15.25 to $15.75
Low Phosphorus	18.50 to 19.00
Old Steel Axles	21.50 to 22.00
Old Iron Axles	22.50 to 23.00
Old Iron Rails	20.50 to 21.00
Old Car Wheels	15.00 to 15.50
Choice No. 1 R. R. Wrought	18.25 to 18.75
Machinery Cast	15.25 to 15.75
Railroad Malleable	13.50 to 14.00
Wrought Iron Pipe	14.25 to 14.75
New Bundled Sheets	13.50 to 14.00
No. 1 Forge Fire Scrap	12.00 to 12.50
No. 2 Light Iron	8.75 to 9.25
Wrought Turnings	11.50 to 12.00
Stove Plate	13.00 to 13.50
Cast Borings	11.25 to 11.75
Grate Bars	13.50 to 14.00

Cleveland.

CLEVELAND, OHIO, September 15, 1908.

Iron Ore.—The market shows a little more activity, sales aggregating about 100,000 tons being reported by merchant Ore firms. Practically all was non-Bessemer, bought by furnace interests that had not previously purchased this season. A number of inquiries are pending from consumers that have, up to this time, kept out of the market. While none of these inquiries is for a large tonnage, it is expected that a fair volume will be sold within the next two weeks. Consumers realize that they cannot delay much longer if they want any Ore for this season's delivery and whatever further buying is done will be about all done before October 1. Further purchases are expected by some of the furnace interests that did not buy for their entire year's requirements earlier in the year, and the fact the demand for Pig Iron is showing an improvement and the production is being increased is expected to have a stimulating effect on the Ore market during the wind-up of the buying season. Ore is moving down the lakes in fairly good volume, and from present indications the shipments in September will be as large, if not a little larger, than during August. Shippers, however, will soon have deliveries completed on contracts made the earlier part of the season, and it is believed that the movement will show a considerable falling off early in October. Prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, $4.50; Mesaba Bessemer, $4.25; Old Range non-Bessemer, $3.70; Mesaba non-Bessemer, $3.50.

Pig Iron.—The demand for Foundry Iron shows an improvement throughout the greater part of the Central West, although there is little buying at present in Cleveland territory. No large sales are reported, but we note two 500-ton lots and several smaller ones. Sales were mostly for the balance of the year delivery, but in some cases to run through the first quarter. Inquiries are more plentiful and some consumers are asking for prices for Foundry Iron for the first quarter and first half. The Massillon Iron & Steel Company is in the market for 4500 tons of Foundry Iron, 1500 tons each of Nos. 2, 3 and 4, for delivery within 30 days, and among other inquiries pending is one for 1000 tons of Northern Foundry for the balance of the year. All furnacemen report an improvement in shipments, and as a result of the better demand the market has taken on a slightly firmer tone, and fewer furnaces are willing to quote the low prices that have been prevailing. One local furnace interest reports that it has its output sold up to February, and this interest, that has been selling No. 2 Foundry at $14.50 for shipment outside of this territory, is now quoting the same Iron at $15 for outside shipments and $15.25 at furnace for local delivery, and is asking about 50c. a ton more for the first half of next year. Sales of No. 2 Foundry are still being made at $14.50 to $14.75, Valley furnace. Two or three furnaces in the Central West that have been idle for several months have their stock piles nearly cleaned up and are expected to go into blast soon. On the other hand, some of the furnaces that have stayed in blast have large stock piles. Outside of Foundry Iron the market continues very quiet, the only inquiry of importance that has come in during the week being one for 3000 tons of Malleable Bessemer. For prompt shipment and for the balance of the year we quote, f.o.b. Cleveland, as follows:

Bessemer	$15.90 to $16.40
Northern Foundry, No. 1	15.50 to 15.90
Northern Foundry, No. 2	15.25 to 15.65
Northern Foundry, No. 3	14.90 to 15.25
Southern Foundry, No. 2	16.85 to 17.35
Gray Forge	14.40 to 14.65

Coke.—The market continues quiet, with prices stationary and weak. There is some demand for Foundry Coke for the balance of the year in small lots, but few inquiries for first half delivery. We quote Standard Connellsville Furnace Coke at $1.65 to $1.75, at oven, for the balance of the year, and Connellsville 72-hr. Foundry Coke at $2 to $2.25, at oven, for spot shipment and balance of year.

Finished Iron and Steel.—The aggregate tonnage ordered on contracts was larger the past week than in any week since the demand began to show an improvement. The largest specifications are for Steel Bars, but orders are better in other lines. Nearly all manufacturers are busier, and orders are coming from all classes of consumers, nearly all of whom have very low stocks. A leading interest reports that its orders during the week were as large in number as in the busy part of last year, and although the aggregate tonnage placed was much less than in normal times, it showed a large increase over any of the few previous weeks. New business is light, consumers being nearly all under contract, but some inquiries are coming in the market for material for work that is being figured on. Good sized Steel Bar specifications have come during the week from the Rivet makers. The demand for Structural Material continues fairly good. Fabricators are ordering freely for stock, and there is a good volume of specifications from bridge builders for material for municipal and county work. The demand for Plates shows some improvement in car lot orders. A concern in this territory is figuring on a contract for a stand pipe and connecting pipes that will require 400 tons of Plates. Among the new orders is one for 200 tons of Plates and Shapes for a passenger boat to be built by a Toledo shipbuilder. The American Shipbuilding Company has given specifications for 800 tons more Plates for the two boats that are being built for the Pittsburgh Steamship Company. The new Ore handling machinery that will be erected for the Pittsburgh & Conneaut Dock Company, at Ashtabula, will require from 2000 to 3000 tons of Plates and Structural Shapes. The Wheeling & Lake Erie Railroad has specified for 650 tons of Standard Rails and Splices on a last year's contract. The demand for Iron Bars shows some improvement, but local mills are not yet securing enough orders to keep them in continuous operation. Among the new Bar Iron orders is one for 500 tons from a car building company, being the first order placed here by a car builder for some months. There is some demand for Light Rails in car lots. The competition of the Rerolling mills is not so strong, as it was in the early summer. A little improvement is noted in the demand for Blue Annealed Sheets. Smaller mills are still making concessions of $1 a ton on Sheets. Jobbers report that warehouse business is holding up well, the September volume being about the same as in August. We quote: Iron Bars, 1.45c.; Cleveland, for car lots; Steel Bars, 1.50c., Cleveland, for car lots, half extras; Beams and Channels, 1.70c., base, Cleveland, and Plates, ¼-in. and heavier, 1.70c., Cleveland. We quote Sheets, mill shipments, car lots, Cleveland, as follows: Blue Annealed, No. 10, 1.90c.; Box Annealed, No. 28, 2.60c.; Galvanized, No. 28, 3.65c. Jobbers quote Iron and Steel Bars out of stock at 1.65c. to 1.70c., Beams and Channels from warehouse are 2c. and Plates, ¼-in. and heavier, 1.90c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.10c.; Box Annealed, No. 28, 2.70c.; Galvanized, No. 28, 3.80c. Warehouse prices on Boiler Tubes, 2¾ to 5 in., are 64 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 71 per cent. discount.

Old Material.—The market is lifeless. Market quotations on nearly all grades remain about stationary, but dealers are showing less disposition to hold up prices to their present level, especially those who are not in shape to hold their Scrap for some time. There have been few inquiries

the past week. Local Steel mills have good sized stocks on hand and the Iron mills are buying very little and only for immediate needs. Consumers seem to be looking for lower prices. Dealers do not regard the outlook as very satisfactory and some of them do not expect any material improvement in the demand before about the end of the year. The railroad offerings this week include about 1000 tons by the Lehigh Valley Railroad. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails	$14.00 to $14.50
Old Iron Rails	17.00 to 17.50
Steel Car Axles	18.00 to 18.50
Old Car Wheels	15.00 to 15.50
Heavy Melting Steel	13.50 to 14.00
Relaying Rails, 50 lb. and over	22.00 to 23.00
Railroad Malleable	13.25 to 13.75
Agricultural Malleable	12.00 to 12.50
Light Bundled Sheet Scrap	9.50 to 10.00

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles	$17.50 to $18.50
Cast Borings	7.00 to 7.50
Iron and Steel Turnings and Drillings	8.00 to 8.50
Steel Axle Turnings	8.50 to 9.00
No. 1 Busheling	12.00 to 12.50
No. 1 Railroad Wrought	13.50 to 14.00
No. 1 Cast	12.00 to 13.00
Stove Plate	10.00 to 10.50
Bundled Tin Scrap	8.00 to 9.00

New York.

NEW YORK, September 16, 1908.

Pig Iron.—The market is steady and shows a tendency toward higher prices. There is an inquiry in the market for 3000 tons of Basic Pig monthly for the first six months of next year. We quote, at tidewater, Northern No. 1 Foundry, $17.25 to $17.75; No. 2 Foundry, $16.75 to $17, and No. 2 Plain, $15.75 to $16.25. Alabama Irons are quoted $17.50 to $17.75 for No. 1 Foundry and $16.75 to $17.25 for No. 2 Foundry.

Steel Rails.—The Wabash system has specified recently on 2000 tons of Rails ordered last year from the Buffalo mill and carried over. In view of the amount of indefinitely quiescent business on the books of the Rail mills, this may be considered as practically new business. The South Chicago mill will roll 2500 tons of 60-lb. Rails for the Twin Falls North Side Land & Water Company, which is to build 26 miles of road in Idaho.

Structural Material.—The financing of the new Wanamaker store construction at Philadelphia brings to the American Bridge Company's books 15,000 tons of Steel. The work has been done in sections and there has now been a long interval in which operations were suspended. The Pennsylvania Railroad has taken bids on 2000 tons of Steel for a bridge over the Hackensack River, in New Jersey, and there is also pending the award of a county bridge over the same stream, calling for a similar tonnage. The Interborough Rapid Transit Company has opened bids for 1800 tons of Steel for elevated work on the Second avenue line in connection with the Williamsburg Bridge terminal. At San Francisco several thousand tons of Steel will be required for the Fort Mason wharf and for pier 40, which the State is about to build. Much of the Steel building work pending in New York City makes little progress toward the contract stage. The Emigrant Savings Bank, on Chambers street, is being withheld for possible revision of some features. For the Ritz-Carleton hotel building at Forty-sixth street and Fifth avenue the general contract has been let, but the Steel, 600 to 700 tons, is not yet placed. A recent San Francisco contract calling for 250 tons for the Pacific Realty Building was taken by the Milliken Brothers' receivers. The prices at which business is still taken give no indication that fabricating works are getting a satisfactory supply of winter work. We continue to quote on mill shipments of plain material, tidewater delivery, as follows: Beams, Channels, Angles and Zees, 1.76c.; Tees, 1.81c. On Beams, 18 to 24 in., and Angles, over 6 in., the extra is 0.10c. From store Structural Material, cut to length, is sold at about 2¼c.

Bars.—Although the Eastern Bar Iron mills are still running considerably under their capacity, some delay is reported in shipments on specifications, indicating that the immediate demand is close to the present productive capacity. This is an encouraging sign, as it is expected to lead to some extension of operations. The leading mills quote Best Refined Bars at 1.56c., tidewater, and are getting some business at this rate, while Bars of ordinary quality are quoted at 1.46c. to 1.51c., tidewater. No change is noted in Steel Bars, which are held at 1.56c., tidewater.

Ferroalloys.—The Ferromanganese market is irregular, and while $42.50 has been done within the month, more recently everything below $43 was refused for a round lot. At the same time some sellers appear willing to buy at $42. A strike in Russia is hinted at. The deliveries of 50 per cent. Ferrosilicon are behind, but some offers have been made as low as $68, delivered.

Plates.—The most important recent event affecting the local Plate trade is the award by the city of Springfield, Mass., of a contract for 42-in. lock-bar Steel Pipe to the T. A. Gillespie Company, which will require about 6000 tons of Steel Plates for its manufacture. It is probable that the Plates may be furnished by a Pittsburgh interest. Some Plates for boat building will be required for some new work now coming up, but, in general, the trade continues quiet. Prices are quoted as follows, at tidewater, for Standard Sized Plates: Sheared Plates, 1.76c. to 1.86c.; Flange Plates, 1.86c. to 1.96c.; Marine Plates, 2.16c. to 2.26c.; Firebox Plates, 2.65c. to 3.50c., according to specifications.

Cast Iron Pipe.—The current demand appears to be confined to small orders, of which Flange Pipe possibly constitutes the greater part. Few lettings are now coming out, and manufacturers are inclined to believe that trade will be light for the remainder of the season. The city of Springfield, Mass., having decided in favor of Steel Pipe, an important expected order for Cast Pipe has thus been lost. Some of the foundries would like to arrange for the manufacture of a considerable stock of Pipe for trade next spring, but will not do so unless some concession can be secured in the price of Pig Iron, thus reducing the hazard of manufacturing. Carload lots of 6-in. Pipe are quoted at $23.50 to $24.50, tidewater.

Old Material.—Buying has been spasmodic for some time, periods of fair demand and almost complete stagnation alternating. The present is one of the dull periods. It is possible, however, that the quiet condition of trade with the dealers may be, to a considerable extent, due to the railroad lists which have recently come out and on which consumers and dealers have both been bidding. Until the consumers find precisely what they have secured from the railroads, they are likely to withhold orders from the dealers. In quite a number of instances dealers and brokers have bid somewhat higher than consumers. Borings and Turnings and No. 1 Railroad Wrought have been in conspicuous demand in view of the general dullness. Stove Plate appears to be in better supply. We quote as follows, per gross ton, New York and vicinity:

Old Girder and T Rails for melting	$11.50 to $12.00
Heavy Melting Steel Scrap	11.50 to 12.00
Old Steel Rails, rerolling lengths	14.00 to 14.50
Relaying Rails	22.50 to 23.00
Old Iron Rails	16.50 to 17.00
Standard Hammered Iron Car Axles	18.50 to 19.00
Old Steel Car Axles	15.50 to 16.00
No. 1 Railroad Wrought	15.00 to 16.00
Iron Track Scrap	12.00 to 13.00
No. 1 Yard Wrought, long	14.00 to 14.50
No. 1 Yard Wrought, short	12.50 to 13.50
Light Iron	7.00 to 7.50
Cast Borings	7.50 to 8.00
Wrought Turnings	8.50 to 9.00
Wrought Pipe	11.00 to 11.50
Old Car Wheels	14.50 to 15.00
No. 1 Heavy Cast, broken up	13.50 to 14.00
Stove Plate	11.50 to 12.00
Locomotive Grate Bars	11.50 to 12.00
Malleable Cast	12.50 to 13.00

The Lackawanna Steel Company has decided to operate as merchant furnaces several of its stacks located in the Lebanon Valley for the production of Foundry, Forge, Bessemer and Low Phosphorus Pig Iron, and has associated with it Crocker Brothers, 99 John street, New York, as exclusive sales agents, for the distribution of the product in the various markets both East and West.

Metal Market.

NEW YORK, September 16, 1908.

Pig Tin.—The improvement in trade which was commented on last week has not continued, and sales are less frequent than for a long time. The selling by the leading consumer continues, but so quietly that it does not break the market. A factor which may still further curtail the small requirements of Tin Plate makers is the low water in the Pittsburgh District, which may necessitate the closing down of some mills. A sharp advance in London on Tuesday, almost entirely speculative, advanced the price on that day. This is also felt, but in a much smaller degree, to-day. Price changes during the week have been as follows:

	Cents.
September 9	28.55 to 28.60
September 10	28.50
September 11	28.50
September 14	28.50
September 15	28.80
September 16	28.55

Stocks of Tin in this country are abundant. The arrivals so far this month are 1177 tons, and there are afloat for American ports 1415 tons. The London market closes to-day at £130 15s. for spot and £132 for futures.

Copper.—Continued reselling by domestic consumers has further weakened the market. These are not being aggressively pushed, but are made whenever possible. Producers are not attempting to sell anything for domestic use, and have been compelled to shade the price of 13.50c., in order to attract foreign buyers. Lake can be had for domestic use at 13.75c. to 13.87½c., Electrolytic at 13.50c. to 13.62½c. and Casting at 13.25c. While the Brass trade is not as good as a fortnight ago, it is fair. The Sheet Copper busi-

ness is good, largely due to low prices brought about by keen competition, and the Wire trade is more hopeful. Numerous projects are planned for next year, which will take quantities of Copper Wire if they go through. The situation at this time is not at all encouraging, however, as the mines of this country are producing more metal than ever before. Much Copper is being transferred to Europe, but this is only a shifting of accounts. It is as much surplus there as if it were piled up at Perth Amboy. Exports for the first 15 days of September aggregated 9678 tons. The London market closes lower to-day at £60 7s. 6d. for spot, and £61 2s. 6d. for futures.

Waterbury Average.—The Waterbury average for August was 13.75c.

Lead.—Some weakness is observed in this market, and at least one important seller is offering Lead at 4.55c., New York, which is 5 points under the American Smelting & Refining Company's price. Probably 4.52½c. could be done on a desirable order. In St. Louis Lead is obtainable at 4.40c.

Antimony.—Prices are again lower. Hallett's can be had at 7.75c. to 8c., Cookson's at 8c. to 8.25c. and outside brands at 7.50c. to 7.75c.

Spelter.—The market is very dull, and prices are largely nominal. Prime Western Brands are quoted at 4.75c., New York, and 4.60c., St. Louis.

Tin Plate.—The trade is quiet, although some business has been taken for the leading consumer. Prices are without change at $3.89, New York, and $3.70, Pittsburgh, for 100-lb. IC Coke Plates.

Old Metals.—Prices are less firm, and in some cases lower. Dealers' selling prices are quoted as follows:

	Cents.
Copper, Heavy and Crucible	12.50 to 12.75
Copper, Heavy and Wire	12.25 to 12.50
Copper, Light and Bottoms	11.50 to 11.75
Brass, Heavy	9.25 to 9.50
Brass, Light	7.25 to 7.50
Heavy Machine Composition	11.75 to 12.00
Clean Brass Turnings	8.25 to 8.50
Composition Turnings	9.50 to 9.75
Lead, Heavy	4.20 to 4.25
Lead, Tea	3.85 to 3.90
Zinc Scrap	3.25 to 3.50

Iron and Industrial Stocks.

NEW YORK, September 16, 1908.

Opposing influences have been felt on the Stock Exchange, railroad stocks being strengthened by the United States Circuit Court decision declaring unconstitutional the commodity clause of the Hepburn law, while certain industrial stocks were unfavorably affected by the passing of the dividend on Locomotive common. The dividend on the latter was passed on Thursday, and the stock thereupon dropped from 53 to 48, fluctuating on following days, until on Monday of this week it touched 45½. Railway Spring common, concerning which some fear was expressed relative to its dividend, declined from 42⅜ on Thursday to 34¼ on Friday, recovering subsequently to 36⅝ on Monday. Other industrials were fairly steady until Tuesday, when a general decline occurred in sympathy with railroad stocks. The range of prices on active iron and steel stocks from Thursday of last week to Tuesday of this week was as follows: United States Steel common 46⅛ to 47⅜, preferred 109⅜ to 111½; Bethlehem Steel common 22 to 23⅝, preferred 49½ to 51; Car & Foundry common 38⅛ to 41, preferred 102¾ to 105; Locomotive common 45⅜ to 53, preferred 102⅝ to 104; Steel Foundries, new, 31; Cambria Steel common 37 to 38½; Colorado Fuel 34 to 36⅞; Crucible Steel common 7, preferred 47⅛ to 49¼; Pressed Steel common 32½ to 35, preferred 93½ to 95; Railway Spring common 34¼ to 42⅜; Republic common 22⅛ to 23¾, preferred 79⅝ to 81¾; Sloss-Sheffield common 62 to 64, preferred 101 to 104½; Cast Iron Pipe common 25⅛ to 26¼, preferred 72 to 73; Can common 5¾ to 6, preferred 61⅛ to 62½. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 46, preferred 109⅝; Car & Foundry common 38¾; Locomotive common 44¼; Colorado Fuel 33¾; Pressed Steel common 32, preferred 94; Republic common 22, preferred 79½; Cast Iron Pipe common 25⅞, preferred 71⅞; Can preferred 60¾, ex-dividend.

The annual meeting of the stockholders of the Colonial Steel Company will be held in Pittsburgh September 28, at which meeting will be considered an increase in the capital stock of the company from $1,250,000 to $2,000,000, and also an increase in the Board of Directors from five to seven.

Directors of the Crucible Steel Company of America met in Pittsburgh this week, but took no action on the preferred dividend which was passed some time ago. No statement of earnings has been made, as the figures for the present quarter will be included in the annual report to be issued early in October. The annual meeting will be held in Jersey City, N. J., October 21.

An opinion by Vice-Chancellor Howell was filed in the Court of Chancery, Trenton, N. J., September 14, refusing to enjoin the United States Cast Iron Pipe & Foundry Company from paying a quarterly dividend of 1¾ per cent. on its preferred stock. The suit was brought by Frank Bassett, a holder of common stock, who charged that the company had voted the dividend, which amounted to $218,000, when there was only about $13,000 credit in the profit and loss account, and that the dividend was voted from the reserve fund. The vice-chancellor held that this was not illegal.

The preliminary report of the Sloss-Sheffield Steel & Iron Company for the three months ended August 31, 1908, estimates the net profits after deducting interest on bonds and taxes at $353,933, a decrease of $90,433, as compared with the corresponding period a year ago. The surplus after dividends is given at $139,933, a decrease of $66,433.

Dividends.—The Sloss-Sheffield Steel & Iron Company has declared a quarterly dividend of 1¾ per cent. on the preferred stock, payable October 1.

The American Locomotive Company has declared a quarterly dividend of 1¾ per cent. on the preferred stock, payable October 21.

The United Shoe Machinery Company has declared a quarterly dividend of 1½ per cent. on the preferred stock and 2 per cent. on the common stock, both payable October 5.

The Otis Elevator Company has declared a quarterly dividend of 1½ per cent. on the preferred stock, payable October 15.

The International Nickel Company has declared a quarterly dividend of 1½ per cent. on the preferred stock, payable November 2.

Trade Publications.

Steam Shovels.—Browning Mfg. Company, Mansfield, Ohio. Bulletin No. 33. Contains principally illustrations of the Browning standard revolving steam shovels in use. These shovels are self-propelling and self-rotating and have variable boom radius. The dipper is detachable, so that the boom can be used for locomotive crane service. The machines are shown in use in brick yards, railroad excavations, ditching and building construction work.

Engine Indicators.—American Steam Gauge & Valve Mfg. Company, Boston, Mass. Catalogue 6 x 9 in., 70 pages. A large part of this volume is given to illustrating and describing numerous types of the Thompson indicators. Indicator cocks and indicator scales of a number of types are also shown, and the advantage of using a steam engine indicator are illustrated by numerous diagrams made by such apparatus. Testimonial letters are included in the volume, together with useful tables.

The working committee, which is to attempt the herculean task of bringing about a uniform railroad freight classification to take place of the present three classifications, met in Chicago September 15 to effect an organization. The committee, which is composed of three representatives of each classification territory, will devote its entire time to this work for at least several months. Some preliminary work was done last winter.

The main delegation from the United States to the International Congress of the Refrigerating Industries at Paris, October 5-10, will sail from New York September 22 on the New Amsterdam of the Holland-American Line. About 50 members from this country will attend. The American membership numbers more than 400.

The Pressed Steel Car Company, Pittsburgh, has recently delivered some large steel ore cars to the Carnegie Steel Company. The cars were designed by engineers of the latter company, and their carrying capacity is about 300,000 lb., the cars being 40 ft. long and 3 ft. deep.

The Fairbanks-Morse Company, Chicago, builder of gas producers and gas engine plants, has opened offices in rooms 1113-14 Union Bank Building, Pittsburgh, in charge of H. J. Young.

The Fawcus Machine Company, Pittsburgh, has received an order for the operating machinery for a large bascule bridge to be erected at Westminster avenue, Vancouver, B. C.

The general managers of sales of the subsidiary companies of the United States Steel Corporation are holding a meeting in New York this week.

The Machinery Trade.

NEW YORK, September 16, 1908.

The slight increase in the demand for machine tools which was noticeable the first part of the month was not maintained the past week with many houses, which report fewer sales and inquiries, and none covering substantial amounts of tools. While the actual transactions are limited to the average of business for the past month or two, increased activity in building operations which will necessitate the purchase of mechanical equipment has become more apparent. Foremost among those which are providing for increased shop facilities are the railroads. Last week we referred to this important factor in the market, and since then plans for additional shops have been reported, principally from the smaller roads. In addition to shop construction, reports concerning the requirements covering rolling stock are better. The intention of the railroads to erect new shops is encouraging, in that it shows that they are not adhering to the policy of retrenchment so closely as they did. While no important machine tool propositions are reported, large inquiries for other classes of machinery are being sent out by the leading smelting and refining interest.

A machinery man closely connected with the export trade, who recently returned from a trip to Europe and who had an excellent opportunity to investigate the demands for machine tools and special machinery there, declares that in his opinion trade from that quarter will soon pick up. The falling off in the demand for automobiles has had a noticeable effect on the machine tool business in Italy and France, but in other European countries where the automobile industry is not so important it is stated trade has not fallen off to such an extent. The machinery man in question said that there are indications of a healthy increase in the demand from the latter countries before long, and manufacturers along general lines in France and Italy will also be heard from. The situation among users of machine tools in Europe, it is said, has been one fraught with more uncertainty than lack of business, and although they have to some extent felt a depreciation in the demand for their product, on the whole they have been by no means as idle as manufacturers in this country, and the lack of demand from Europe for American machine tools which has prevailed of late is largely due to caution on the part of the usual customers. There seems to be a stronger sentiment now and, the visitor said, there are inquiries for a varied line of machine tool equipment, which indicates that the demand will shortly pick up. The fact that prices of American machine tools have been maintained during the depression had some effect on would-be purchasers, as many of them, feeling that there would shortly be a reduction, have put off buying from time to time with a view to getting a better price. Many manufacturers, it was stated, have now reached a point where they will be obliged to buy, and having become convinced that prices will be maintained, it is thought that they will be in the market shortly. All things considered, the visitor reached the conclusion that while there may not be a rush of business from Europe, there certainly will be an increase in the demand within the next few weeks and a healthy buying movement will result.

The New York Central Railroad continues to enlarge its shop facilities by both the erection of new buildings and the installation of additional machinery. This company has apparently abandoned its former policy of sending out long lists of machine tools for bids, and is sending out inquiries and making purchases of a few tools at a time. We understand that inquiries are out for a few machines and that the company has lately placed a number of orders, individually small but aggregating a fair amount. As stated last week, the company has under consideration the bids sent in for about $45,000 worth of cranes for the West Albany shops, where it is building important additions. It is likely that the road will require considerable machinery for the new shop to be erected at Rensselaer, N. Y. This building will be devoted to machine work by the Boston & Albany Railroad and will be 40 x 150 ft., 20 ft. high.

It is reported that the Tampa Northern Railroad, Tampa, Fla., has plans prepared for new shops to be erected at Palmetto Beach, the main building to be 90 x 200 ft.

The Georgia & Florida Railroad contemplates the construction of shops at Valdosta, Ga. The report that the company would build shops at that point to cost from $150,000 to $200,000 is denied, the company stating that it does not contemplate erecting shops to cost anywhere near that amount.

The Seaboard Air Line has let contract to Burwell & Hillyer, Jacksonville, Fla., for the erection of a terminal at Grassy Island, Tampa, Fla., including three wharves and a warehouse, for the equipment of which it is probable that considerable hoisting machinery will be installed.

The Virginia Railway Company, Norfolk, Va., is making expenditures just now for steel cars, and it is said that the company will do some other active buying shortly. The system of shops, which has been under consideration for several months, it is said, will soon be erected about half way between the terminals of the company's system, and their construction will necessitate the purchase of a large amount of shop equipment. It is probable that before long the trade will hear of a demand from this source.

Large Inquiries for Smelting and Refining Machinery.

The American Smelting & Refining Company, 165 Broadway, New York, has inquiries out for over $50,000 worth of equipment to be installed in a number of its Western plants. The requirements include a general line of reduction machinery, as well as coal and ore conveying and ore handling machinery. On some of this equipment, and especially the conveying apparatus, bids are now being taken, and it is expected that orders will be closed out shortly. From all accounts this machinery is not required for any improvement in a particular plant, but for several of the larger plants controlled by the company.

The New Jersey Zinc Company, 71 Broadway, New York, is making extensive improvements to its mines and plant at Franklin Furnace, N. J. It is understood that within the next year the company will double its concentrating plant there, and at present some outdoor mining equipment to be installed in a new shaft now in preparation is being purchased. The present requirements include some concentrating machinery, but the principal purchases now under way are for the needed mining equipment.

Charles C. Force & Son, Madison, N. J., who, as mentioned in these columns recently, have completed plans for a new plant 78 x 132 ft., to take the place of the one recently destroyed by fire, have purchased considerable of the equipment, but are still in the market for three down draft forges, one pressure and one exhaust blower, one 150-lb. belt driven power hammer and a 16-in. shaper.

A general contract has been awarded by Jenkins Brothers, 71 John street, New York, to the J. W. Bishop Company, 345 Fifth avenue, New York, for the construction of a large two-story factory building at Elizabeth, N. J., to replace the plant of the Jenkins Rubber Company, which was practically destroyed by fire several weeks ago. The new plant will cost about $30,000 and it will be two stories in hight. It will be considerably larger than the old plant, in which nearly all of the machinery was destroyed, with the exception of the power plant, the structure containing that equipment, together with the office building, being the only parts of the plant not burned to the ground. The Jenkins Rubber Company is controlled by Jenkins Brothers, manufacturers of valves, valve fittings, &c., and the former company made all the rubber attachments and specialties used by Jenkins Brothers. The details concerning the machinery requirements are now being arranged, and it is expected that before long the trade will hear of a good sized list of equipment for the new plant.

The fact that the Isthmian Canal Commission has inquiries out for a large amount of conveying and cement handling machinery, which was forecasted in these columns several months ago, is of particular interest to manufacturers of cement making machinery, such as mixers, &c., as there is no doubt that the present requirements will be followed by a list of this class of apparatus. The specifications covering cement handling and conveying machinery now in the hands of the trade call for apparatus which will cost in the neighborhood of $600,000, it is estimated, and this is probably the largest demand from a single source in that line that has come before the trade this year. The recent placing of a large cement order, together with the appearance of the list now before the trade, is taken as an indication that the engineers on the canal intend to put the cement work through as rapidly as possible, so it is expected it will not be long before the requirements for that branch of the canal enterprise are completely listed and sent out.

The Superintendent of Public Works, Albany, N. Y., has awarded Barge Canal contract No. 66 to the Empire Engineering Company, New York, for $750,685. The contract calls for work on the Erie Canal near the locks at Lockport, N. Y., a distance of about 6 miles.

The Vandyck-Churchill Company, 91-93 Liberty street, New York, is now the exclusive Eastern representative for the Sight Feed Oil Pump Company, manufacturer of the Richardson sight feed oil pump and other lubricating specialties. William Martin, formerly local representative of the oil pump company, has joined the engineering department of the Vandyck-Churchill Company. The latter company makes a specialty of installing oil systems, among those recently installed being that of the Hudson Terminal Building, the Marbridge Building and the Singer Building in New York, and the plant of the American Steel & Wire Company at Allentown, Pa.

Philip G. Roeder, for 18 years resident agent in the City of Mexico of American manufacturers, has withdrawn from the Mexican Steel Products & Machine Company, with the object of establishing himself in the same business. He will take charge, in Mexico, of the interests of the American Woodworking Machinery Company.

Chicago Machinery Market.

CHICAGO, ILL., September 15, 1908.

In seeking for information from manufacturers and dealers regarding the trend of trade movements in the machinery market, one encounters a variety of opinions which quite naturally reflect to a large extent the results of individual experiences. When the volume of business moving is as small as it is at the present time, the winning or losing of orders of comparatively unimportant size materially affects trade balances. It is therefore to be expected that there will be less uniformity in reports under present conditions than is usual when business is more nearly normal in volume. At the same time the situation is marked by certain aspects which serve as a more or less accurate index of general results. It is noticed, for instance, that in the past few weeks there has been some gain in the active productive capacities of the steel foundries, a fact that is of encouraging significance in that it points to an expansion of work in machinery lines. It is true that this sign of improvement is not yet pronounced enough to deserve special emphasis, but nevertheless the gains made in this industry are substantial enough to be taken into account in a prospective way, at least. Reports from some of the Western machine tool builders are likewise tinged with a stronger color of optimism than has been the case for some time. While actual buying of shop equipment is to a large extent restricted to industries of minor importance, both the character and number of inquiries coming out afford a reasonable hope of larger purchases in the near future, that will embrace the requirements of more extensive plants.

In reviewing the present state of industry throughout the West and noting the proportion of manufacturing capacity yet unoccupied, a prominent dealer raises the question as to whether the present limited number of machine tools now being purchased by users are actually required for present service, or whether they represent deferred needs that are being supplied because of favorable market conditions. There are, no doubt, many buyers, who, remembering the difficulties encountered in the attempt to secure new tools during the period of congestion in 1906 and 1907, are taking advantage of opportunities afforded by the dullness of trade to provide equipment which they expect will be needed later on. When it is considered that at the beginning of 1907 machine tool manufacturers had orders on their books sufficient to keep them busy anywhere from 6 to 12 months or more, and at the beginning of the depression a large portion of this business was wiped out by cancellation, it is quite probable that when factories are again restored to a basis of normal operations much of this business will reappear in the form of new orders. How soon this condition of affairs will be realized cannot, of course, be accurately determined, but among experienced observers there are those who believe a permanent upward movement, slow and gradual though it may be, is already under way.

The Vilter Mfg. Company, Milwaukee, Wis., has for the last three weeks been running practically every tool in its shop with both day and night shifts, and has within that time added to its operative force about 120 men. Improvement in the demand for ice making and refrigerating machinery, which, together with Corliss engines, constitutes the company's principal product, is more marked than in other machinery lines. The extension of the dry blast system as applied to blast furnace and Bessemer steel plants, has materially widened the field for refrigerating machines. Following the installation in the plant of the Illinois Steel Company at South Chicago of a large refrigerating equipment for use in connection with the Gayley dry blast system, the company is now turning out two 300-ton refrigerating machines for the Northwestern Iron Company, Mayville, Wis. These machines are to be operated with shell type brine coolers and atmospheric condensers for the dry blast plant, which is designed to furnish dry air for the blowing engines of the two blast furnaces at Mayville. Other recent orders entered include two 60-ton plants for making can ice, for the Kansas Ice Company, Newton, Kan., one of the plants to be installed at Waynoka, Okla., and the other at Clovis, N. M., to furnish ice for fruit cars coming over the Santa Fé System and for other purposes; one 100-plate ice plant with duplex compressors and cross compound condensing Corliss engine, National Capital Brewing Company, Washington, D. C.; one 100-ton refrigerating plant, Arbogast & Bastian Company, Allentown, Pa.; one 60-ton direct expansion system refrigerating plant, Elliott & Co., Duluth, Minn.; two 100-ton refrigerating compressors, American Ice Company, Brooklyn, N. Y. Export orders from Corozal, British Honduras, and Vera Cruz, Mexico, have also been received.

Decided improvement in the demand for milling machines is apparent in the increasing number of orders entered in the past three weeks by the Kempsmith Mfg. Company, Milwaukee, Wis. While the business of Western manufacturers of milling machines has not suffered as severely from the effects of the depression as some other lines of machine tools, it has, nevertheless, passed through an extremely quiet period. As evidencing the extent of improvement the company states that new orders have been coming in during the last two weeks of August and the beginning of the present month at a rate closely approximating factory capacity, and quite a number of inquiries of very promising character are developing. It is noted in this connection that the demand continues to be largely from the smaller manufacturing interests, with only occasional orders from the railroads and other large shops.

The steel casting industry is a pretty accurate index to the state of activity in the manufacture of machinery, since its product is principally consumed by machinery builders. It is therefore gratifying to note that the George H. Smith Steel Casting Company, Milwaukee, Wis., has recently begun to make some additions to its working force. The improvement observed is slow and gradual, but even slight gains in this department of foundry work is of especial significance, since the revival of other lines is likely to precede any notable expansion in the requirements for steel castings.

The Northwestern Mail Box Company, St. Louis, Mo., is preparing to move from its present location to 5029-5035 McKissock avenue, where a manufacturing building affording greater space and improved facilities has been secured. Not only has the increased production of its present line made it desirable in the interest of economy for the company to seek new quarters, but the extension of its operations in other directions has made such a move imperative. As many as 720 mail boxes a day have been turned out in the old shop, but the new plant will have a capacity of 1000 a day. Besides the manufacture of mail boxes, the company expects to engage in jobbing sheet metal work and other specialties. Some new equipment in the way of punch presses and sheet metal tools will be required to bring the new plant up to a standard of efficiency required for the work to be undertaken.

The shipments of gas and gasoline engines made by the Anderson Engine Company, Shelbyville, Ill., during the month of August were fair in number and widely distributed. Part of these engines were of marine type, the remainder being for automobile work. Included in the engines furnished was one for shipment to Vancouver, B. C.

A charter has been granted to the People's Light Company, Thomas E. Craig, manager, Corpus Christi, Texas, for the installation of an electric light and power plant to cost $30,000. A part of the machinery and equipment required for this installation has been purchased, but the company is yet in the market for a steam driven set of 75 or 100 kw. capacity to be installed in an ice factory as a reserve unit supporting a producer gas set operating the plant. The reserve unit will not be run except occasionally to take care of extra load and in case of other emergencies.

Extensive improvements planned by the Rockford Electric Company, Rockford, Ill., contemplate the remodeling of its water power equipment. This will involve the substitution of a concrete structure for the present wheel house, the installation of new head gates and new direct connected generators. Work on this improvement will be begun in about two weeks.

McDowell, Stocker & Co., Chicago, dealers in machine tools, have increased their capital stock from $60,000 to $150,000.

Cincinnati Machinery Market.

CINCINNATI, OHIO, September 15, 1908.

With nearly half of September gone, and expectations of machinery and tool manufacturers concerning improvement in business unsatisfied, the local trade is practically certain that the ante-election lull is on in earnest and are settling themselves for a period of quiet and inactivity that will last until after election at least. Such inquiries as are coming in now contemplate purchases, many of them, dependent upon election results, and the greater number of them do not indicate desire for early deliveries. Inquiries are fewer than last month during the same period of time, although there are some special machines and tools selling. Foreign trade is very quiet. A local manufacturer, speaking of this division of trade, says: "The foreigner is very wary and clever; he is evidently ready to buy, but is watching for bargain prices, and price cutting among American manufacturers, rumors of which have reached him already." The larger manufacturers of tools in this territory deny unequivocally the charge of price cutting. As a matter of fact the greater number of them are in excellent shape to weather a long depression in trade, and few, if any, have overstocked during the past months of depression. The dealers have allowed their stocks to run quite low and manufacturers are already in receipt of overtures from some

prominent sellers, and these are expected to materalize very soon after election, if not before.

That the tool builders are alive to the possibilities of improvement in exhibiting their products is seen in the preponderance of machine tool builders' names on the list of the promoting company which is pushing the 10-story exhibition building project in this city. The project will undoubtedly have the encouragement and support of both the National Metal Trades Association—in so far as such a central building devoted entirely to the display of machinery would add eclat to the trade in general—and the Cincinnati Metal Trades Association, which is one of the largest and most influential in the United States. Another matter which is just now interesting local manufacturers is the announcement that Cincinnati may become the headquarters for the Middle West in the new plan of the Government for distribution of immigrants. The visit to Cincinnati Saturday of Secretary of Commerce and Labor Oscar S. Straus and Terence V. Powderly, chief of the Division of Information and Distribution of Labor, gave the first intimation of something along that line, and their words in interviews strengthen the belief that Cincinnati's ideal location geographically will have great weight in the final decision. With a strong machinery market and shops taxed to capacity these immigrants, such as were machinists, would be welcomed here, for it has been difficult in the past to secure enough such help.

Second-hand tools are very quiet and dealers generally are having little inquiry for any kind of tools aside from some special types which have had the call for several weeks. Medium and small sized units in electric power generating machinery are still enjoying a good sale, and manufacturers of metal working machinery are also having a good and steady demand.

Reports from Newcastle, Ind., indicate that the Indiana Rolling Mill Company is gradually getting all departments in operation. The shovel plant was started just two weeks after the fire which caused a loss of $50,000.

Reports from Columbus, Ohio, indicate that sufficient orders are accumulating and prospects sufficiently encouraging to warrant the starting up of the freight car department of the Ralston Steel Car Company. An order has been received from the Lackawanna Railroad which is to be filled within the next 30 days. This company has been operating the underframe and mine and plantation car departments on some good orders for mine cars and a large one of plantation cars for shipment to sugar planters in Cuba.

The American Valve & Meter Company, Cincinnati, has made a division of its power system and will utilize steam for the lower floors and electric units on the upper ones. President Fenner reports business as increasing gradually, the first half of September showing the best half month so far of the year. The company is now working full time, 55 hours.

C. L. French and A. B. Bowen, experts in the demonstration and sale of the products of the Norwalk, Ohio, Vault Company, represented that company in a comprehensive exhibit at Columbus during the State Fair. At the West Virginia State Fair, at Wheeling, W. Va., last week, the company was represented by Don Powers.

Catalogues Wanted.—The University of Cincinnati, Cincinnati, Ohio, which is introducing courses in metallurgical engineering, desires catalogues from manufacturers of metallurgical machinery and appliances for its files and for the use of the students and officers of the department.

Cleveland Machinery Market.

CLEVELAND, OHIO, September 15, 1908.

Less activity is displayed in the local machine tool market than in the latter part of August. This is attributed to the fact that the majority of the automobile builders in this territory, who have been buying quite freely to add to their present equipment with the view of increasing their next season's output, have completed their purchases. Some small inquiries are still coming from the automobile people, however. The demand for standard machine tool equipment from other industrial concerns continues rather light. No large inquiries are pending and sales are limited mostly to one or two tools.

The demand for small electrical equipment shows a marked improvement. The local selling agent of one large manufacturer reports more small orders than at this time a year ago. The demand comes largely from industrial plants that are replacing present worn out equipment with new or are making plant alterations and small additions. During the period of depression these companies held off in placing orders for needed equipment, but now that conditions have improved they are coming into the market for their requirements. The demand for large machinery is still light, the market not having improved materially in this respect. A number of projects that will require the installation of considerable heavy machinery when carried out are still being held up. Some machine tool builders report an improvement in orders, particularly for special machinery. Little business is coming from the railroads. Local dealers have an inquiry from the Rock Island Railroad for about a dozen ironworking and woodworking machine tools.

There is a fairly good demand for small cranes for industrial plants. There is an improvement in the demand for industrial cars from mines, particularly from copper mining companies, but the unusually strong competition for the business has resulted in the quoting of very low prices.

In second-hand machinery the demand continues fairly good and dealers are able to move second-hand tools without keeping them in stock long. The supply is only moderate.

The Lannert Steam Company, Cleveland, has been organized, with a capitalization of $100,000, to build gins and other cotton machinery. The company will do its manufacturing at present at the plant of the Lannert Company, machinist, Sixtieth street and Standard avenue. The new company has placed orders for a few machine tools, but expects to be in the market for more from time to time. It is probable that a new plant will be erected in a year. J. A. Lannert is president.

The Cleveland office of the Allis-Chalmers Company reports considerable improvement in the demand for small electrical equipment for manufacturing plants, the number of orders of this nature being greater than at this time a year ago. This company recently secured from the Diamond Match Company, Akron, Ohio, an order for a complete steam and electrical equipment of about 1000 hp., for a new power house that will operate the Diamond Company's present plant and a large addition that is being built. The order includes engines, generators, switchboards, transformers and motors. Among other large orders recently secured by the Allis-Chalmers Company in this territory is one for a stone crushing plant for the Wagner Stone Company, Sandusky, Ohio, and a new turbine unit of 1000 kw., with condenser, substation transformers, switchboard and high tension apparatus, for the Cleveland & Southwestern Railroad.

Finding more room necessary for its growing business, the W. S. Tyler Company, Cleveland, maker of ornamental ironwork and other products, has let contract for the erection of a four-story factory building, 53 x 100 ft., of brick and steel. The contract for the steel work has been let to the Forest City Steel & Iron Company.

The Seneca Chain Company reports a satisfactory improvement in orders for all kinds of chain. This company is now running its Mansfield plant at full capacity, and this week started up its Kent plant at over one-half of its full capacity.

The Ramey Mfg. Company will remove from Butler to Newark, Ohio, and will be located for the present at 42 Franklin street, in the latter city. The company expects to erect a new plant in the spring, including a foundry, factory, machine shop, &c. The company manufactures hot air furnaces, sawmills and factory blowers. E. J. Ramey is manager.

The Lake Shore Portland Cement Company, Sandusky, Ohio, has closed a contract for the erection of a plant with a capacity of 5000 bbl. a day. A cement plant at Manchester, Mich., will be taken down and re-erected on the Sandusky site. A 5-acre site has been secured for the plant.

The new plant of the National Sanitary Mfg. Company, Salem, Ohio, is nearing completion, and it is expected that it will be placed in operation in October. The plant consists of two main buildings, the foundry and the enameling building, each 60 x 200 ft. Attached to the latter is a wing 40 x 200 ft. This will be used for a shipping room, engine and boiler room, &c. The output of the plant will be 75 bathtubs and from 250 to 275 smaller pieces, including lavatories, sinks and footbaths, per day.

It is reported from Canton, Ohio, that the Wright Wrench Company, Philadelphia, has decided to locate in the old Aultman works in that city and will move to Canton at once. Allen C. Mason is president.

New England Machinery Market.

WORCESTER, MASS., September 15, 1908.

New England is in that stage of the transitory period between stagnation and prosperous business where very slight changes receive careful and perhaps exaggerated attention. The consensus of opinion is that the turning point has been reached. Up to the present, however, the difference is not great in the average of cases. A few manufacturrs in metal lines are mightily encouraged by the volume of new orders. In others there are indications of an acceleration, but a gradual one, and from a small beginning. In a few cases business is hardly as good as it has been during the summer. In some lines connected only remotely with the metal trades the increase in volume is more apparent. Generally speaking, the nearer the industry is to the actual consumer, the better the volume of business. It is worthy of special notice that those houses that have been most con-

servatively reluctant to accept the promise of an early resumption of normal business are now saying that "things feel better," to quote one of them. Among the machinery and supply houses the improvement thus far has been trifling. Orders have been about as usual. The only immediately favorable change is the oft-repeated one that inquiries look more as if they mean immediate orders.

The week has seen important developments in new business, already mentioned. The Watertown Arsenal list of machine tools, which was submitted under requisition to the Boston dealers, has been decided in so far as the recommendations of the commandant are concerned, and the results have been sent to Washington. The Laconia Car Works Company, Laconia, N. H., and the Bath Iron Works, Bath, Maine, have awarded their contracts for considerable lots of tools; the former a miscellaneous list, the latter for boilermakers' machinery, which will go into the new boiler shop made necessary by the destruction of the old.

The city of Boston, in addition to small lists recently figured by dealers, will soon be in the market for an important lot of machine tools, which will constitute the equipment of the new addition to the Mechanics' Art School, now in process of building and approaching completion. It is understood that the management of the school is waiting to end the cares attending details of building construction before finally deciding upon the machinery list.

Some improvement is noted among the Worcester machine tool builders, though in most cases it is slight. The tone of inquiries is changing to one of more pronounced purpose to buy. One of the occasional instances of actual increase in orders booked is that of the Stockbridge Machine Company, builder of shapers. The management states that during the past fortnight an entirely satisfactory amount of new business has been received, and that the shop has taken on a full force of men and increased its running time from 40 to 45 hr. a week.

Railroad construction in New England has been insignificant this season, constituting a very small mileage, and the dealers in construction equipment and supplies have suffered accordingly. The outlook for another season is much brighter, however. The most important project in sight is the Boston & Providence electric railroad, which is said to be strongly backed financially. The only obstacle in its way is difficulty in securing the necessary locations in some of the towns which the line would traverse, and sufficient progress has been made in this direction to indicate a successful fulfillment of the plan, probably next summer. The New York, New Haven & Hartford Railroad has various electric street railroad plans under consideration, which, when the work begins, will have an important influence on the market.

Prices have been cut on certain classes of iron working machinery, which are not represented in the membership of the National Machine Tool Builders' Association. In more than one recent contract the claim that this has been done has been advanced by unsuccessful competitors, and there seems to be no reason to doubt the statement. Heavy stocks of machines have led manufacturers to unload at prices less than those quoted when business was good. Considering that no obligation exists, by "gentlemen's agreement," or otherwise, to maintain price-lists, the temptation to get business at some sacrifice may be strong. But on the other hand, the machine tool people who have held to their prices keenly realize that while they may seem to have made some sacrifice in declining to grant concessions to customers, they have placed themselves in a very advantageous position for the return of good business. They maintain, basing their argument upon past experience, that price-cutting is injurious to their interests in more than one way. Not only are lists cut to levels too low for profit, but competition may be reduced to a basis of actual strife, which makes it difficult to return to a proper margin of gain. Once in a while a dealer or a manufacturer who has resisted all advances toward lower prices, speaks pessimistically concerning the results, especially as they may come from business in the immediate future. But these are rare cases. The feeling is very strong that a principle adhered to through a year of depression should not be broken on the eve of what appears to be a return to prosperous conditions. The statements of buyers who have tried to change this attitude of the machine tool people prove that there has been strict adherence to the lists. On the other hand, purchasing agents make no pretense of denying that they have "shopped" in those branches of the trade that have not adopted the principle of price maintenance in dull times, and that they have profited largely by inciting manufacturers and dealers to bid one against the other.

The Boston office of the Ingersoll-Rand Company, compressors and pneumatic tools, reports that the season has been a good deal better in this territory than in some other sections of the country. The quarries, which are the principle customers, have been accelerating their buying, the company's totals for each month from June to September showing a gain on the month preceding it, and there is every indication that September's figures will top them all, although the season is now waning with the approach of cold weather.

The spurt noted in the boiler trade in August is less in evidence than it was, a condition which the manufacturers do not attempt to explain. The amount of new business is small. In this trade as in the steam engine industry business aggregating large figures will result from the carrying out of plans for power improvements when owners shall decide to go ahead with them as contemplated.

The Labor Bureau conducted at Springfield, Mass., by the Springfield Branch National Metal Trades Association and the Connecticut Valley Metal Trades Association has been removed to the ground floor of the Court Square Theatre Building on Court House place.

The Barnett Drop Forging Company, Inc., Easthampton, Mass., has made A. Stassewski, 116 Nassau street, its New York representative. The company states that its business is looking much better, with a prospect that the works will be busy the coming winter.

A permit has been granted the Scoville Mfg. Company, Waterbury, Conn., for the erection of a one-story brick extension to its rolling mill on Hamilton avenue. It will be 38 x 54 ft., with a steel trussed roof and corrugated steel covering. The company has also been granted a permit for an additional story to each of five factory buildings on Hayden street. The sizes are 54 x 249 ft., 50 x 249 ft., 32 x 70 ft., 44 x 84 ft. and 22 x 32 ft., and all will be of brick and mill construction, with tar and slag roof covering. Hugh L. Thompson is the consulting engineer.

The Chicago Machine Tool Company, Chicago, Ill., has brought out a new type of horizontal plain milling machine known as the solid saddle miller, one of which is shown on the floor of Hill, Clarke & Co.'s Boston store. The saddle is cast as a part of the bed, adjustment being obtained by the movement of the cutter arbor over the work, a feature tending toward great rigidity of construction. This horizontal adjustment is 6 in., while the economical longitudinal feeds of the two sizes are, respectively, 24 and 36 in. The machine has single pulley drive, changes of speed being obtained by means of change gears, a feature of advantage in manufacturing large numbers of pieces of the same sort, the operator being unable to change his speeds unless decided upon for him. Changes of feed are from a feed quick change gear box.

The Chandler & Farquhar Company, Boston, has taken the exclusive agency of the new file sharpener of the American File Sharpener Company, New York, for the New England territory.

In connection with the formal announcement of the permanent abandonment of the Providence plant of the American Locomotive Company, it is stated that the American Locomotive Automobile Company will continue to manufacture in Providence, in the new buildings erected for the purpose quite recently. The old machine shop of the Locomotive Works has been torn down. The automobile department is busy.

Philadelphia Machinery Market.

PHILADELPHIA, PA., September 15, 1908.

The volume of business actually placed during the week has been small, particularly as regards that done in the usual line of standard machine tools. Some merchants have taken on a trifle more business recently, but the market continues irregular and from present indications will probably so continue until after the November elections.

With considerable business pending, however, the trade feels encouraged with the prospects for future trade, although at the time it is found difficult to close anything except urgent business. The fact that business outside the trade shows a continued slight improvement is considered favorable. The increased activity of the railroad repair shops, which was further augmented by the employment of an increased number of men and longer working hours at the Pennsylvania Railroad shops the past week, lends further encouragement to the trade, and it is believed that this increased activity will lead to purchases of machine tools in the not distant future. The large industrial plants in this territory, while showing slight gains in production, have not yet approached the point where they will consider purchases of equipment. The Baldwin Locomotive Works is still operating at a low rate of production, and will probably show but little improvement until railroad buying becomes more active. Some business has been placed with the shipbuilders in this territory, and further contracts are pending, so that the outlook in this direction is considered more favorable.

Business has been confined almost entirely to single tool propositions. Sales are largely of the smaller tools, with an occasional sale of one of the heavier types. Week to week gains are hard to measure, owing to the irregularity of the demand, but on the basis of comparative months a slight improvement is to be noted in some directions. Prices are being pretty firmly held. It appears that there is little trouble regarding the price when a buyer is interested, the principal difficulty being to get him to place the order, the tendency being to hold off buying as long as possible.

Manufacturers of the standard lines of machine tools report little new business. Orders come in intermittently and few of the larger plants are operating at any materially increased capacity. Some of the smaller plants, which do not require a large amount of business to keep them running, are somewhat more actively engaged. Special tool builders have taken on a somewhat better volume of business, although none have yet increased their capacity very extensively, and are still operating considerably below the normal. Generally speaking, the manufacturing trade does not expect any material increase in business until after the approaching general election. It is anticipated that buyers will hold back until then, and under the circumstances it is believed that normal conditions will not be attained until some time early next year.

The foreign demand, both for standard and special tools, continues rather quiet. New business comes out but slowly, and the outlook for any marked improvement is not encouraging.

A considerable amount of business which under ordinary conditions would largely come to the builders of new machine tools is being deflected to the second-hand machinery market, where the advantage of prices, owing to the economies practiced by purchasers, is a factor. Even this branch of the trade is not so active as the trade would like, but, on the whole, a fair volume of business, considering the circumstances, continues to be placed. Power equipment, both new and second-hand, appears to be a trifle more active. Inquiries are largely confined to equipment of the smaller and medium classes, the larger pending propositions being still held in abeyance.

A slight improvement continues to be noted in the foundry trades. The increase cannot be traced to any heavy gain in the demand from machine tool builders, but comes largely from the general users of castings. Steel casting plants have not taken on any increased business and continue to operate at from 40 to 50 per cent. of their capacity.

Sealed proposals will be received until September 24 by H. C. Gwin, borough engineer, room 14, Altoona Trust Company Building, Altoona, Pa., for furnishig the necessary materials and labor for the construction of a reservoir. The approximate quantities are 3000 yd. excavation, 850 yd. concrete, 535 sq. yd. cobble, 2520 ft. of 16-in. cast iron pipe, and 650 ft. of 8-in. cast iron pipe, with valve fixtures. A lump bid for the completion of the work will be received.

Proposals will be received by the commission for the Institution for Feeble Minded and Epileptics, near Spring City, Pa., to erect Building E, and furnish boiler, laundry machinery, &c., in connection with it. Bids will be received in care of John M. Scott, 625 Walnut street, this city, until October 2. Plans and specifications may be obtained at the office of the architect, Philip H. Johnson, 1825 Land Title Building, Philadelphia.

The Philadelphia Roll & Machine Company finds the demand for rolling mill machinery rather quiet. A fair run of business continues in both sand and chilled charcoal iron rolls, principally in the small and medium sizes, and enables the plant to be maintained in operation on a basis of four to five days per week. The outlook for business is not considered encouraging, and it is believed that business will remain practically unchanged for the remainder of the year. Inquiries are not extensive, although one for a complete mill equipment is being figured on, and will, it is expected, be closed during the current month.

The American Pulley Company notes a slight increase in the demand. It is unable as yet, however, to operate its plant at much over 50 per cent. of its capacity. Orders are not numerous, and the tendency has been to order in sufficient quantities to meet the immediate demand only. The foreign trade is quiet, orders are frequent but small, and consequent shipments are light. The week to week improvement has, on the whole, been small, but is more clearly shown when taken for the month, each succeeding month recently having been somewhat better than its predecessor.

Government Purchases.

WASHINGTON, D. C., September 15, 1908.

The Isthmian Canal Commission will soon ask bids for 30 duplex horizontal oil pumps, with 3½-in. steam cylinder, 2½-in. oil cylinder and 4-in. stroke; 10 duplex horizontal oil pumps, 4½-in. steam cylinder, 3½-in. oil cylinder and 6-in. stroke; six duplex horizontal plunger pumps, 3½-in. steam cylinder, 4-in. water cylinder and 6-in. stroke; two duplex horizontal plunger pumps, 6-in. steam cylinder; 8-in. water cylinder and 10-in. stroke; six duplex horizontal plunger pumps, 5½-in. steam cylinder, 6-in. water cylinder and 8-in. stroke; two duplex vertical feed pumps, 9-in. steam cylinder, 6-in. water cylinder and 10-in. stroke; six duplex horizontal feed pumps, 6-in. steam cylinder, 4-in. water cylinder and 6-in. stroke; six vertical feed pumps, 6-in. steam cylinder, 4-in. water cylinder and 6-in. stroke.

The Secretary of Agriculture, Washington, D. C., will receive bids until September 20 for boilers, mains, pipe, &c., for the central heating and power station of the Weather Bureau.

The Isthmian Canal Commission will receive bids until October 7, Circular No. 467, for four berm and four chamber cranes.

The following bids were opened September 8 for machinery for the navy yards:

Class 1.—One No. 4 high power universal milling machine—Bidder 96, Harron, Ricard & McCone, San Francisco, Cal., $2522, $2542, $2558 and $2578; 133, R. K. Le Blond Machine Tool Company, Cincinnati, Ohio, $2355; 181, Pacific Tool & Supply Company, San Francisco, Cal., $2258, $2831, $2411 and $2771.

Class 2.—One vertical boring and turning mill—Bidder 118, King Machine Tool Company, Cincinnati, Ohio, $4620 and $4820; 160, Niles-Bement-Pond Company, New York, $3993 and $4350; 181, Pacific Tool & Supply Company, San Francisco, Cal., $3890.

Class 3.—One flat turret lathe—Bidder 179, Pratt & Whitney Company, Hartford, Conn., $2739; 181, Pacific Tool & Supply Company, San Francisco, Cal., $1350.

Class 4.—One upright drill—Bidder 51, Compressed Air Machinery Company, San Francisco, Cal., $375; 67, Frevert Machinery Company, New York, $321; 96, Harron, Ricard & McCone, San Francisco, Cal., $367.50, $432.50, $319 and $364; 181, Pacific Tool & Supply Company, San Francisco, Cal., $374.

Class 5.—One 14-in. lathe—Bidder 51, Compressed Air Machinery Company, San Francisco, Cal., $916; 96, Harron, Ricard & McCone, San Francisco, Cal., $956.36 and $670.28; 179, Pratt & Whitney Company, Hartford, Conn., $1215; 181, Pacific Tool & Supply Company, San Francisco, Cal., $1141.

Class 6.—Two lathe holders—Bidder 96, Harron, Ricard & McCone, San Francisco, Cal., $1172.82; 133, R. K. Le Blond Machine Tool Company, Cincinnati, Ohio, $980.60; 181, Pacific Tool & Supply Company, San Francisco, Cal., $1290.

Class 151.—One universal milling machine—Bidder 30, Brown & Sharpe Mfg. Company, Providence, R. I., $1149.50 and $1300; 70, Fairbanks Company, New York, $1161.75; 93, Hendey Machine Company, Torrington, Conn., $1130; 160, Niles-Bement-Pond Company, New York, $1248 and $1109.

Class 161.—One plate joggling machine—Bidder 16, Alliance Machine Company, Alliance, Ohio, $3895; 99, Hilles & Jones Company, Wilmington, Del., $4480; 139, Morgan Engineering Company, Alliance, Ohio, $4425.

Class 171.—One tapering machine—Bidder 68, Falls Rivet & Machine Company, Boston, Mass., $473.30; 178, Thomas W. Pangborn Company, New York, $544.50.

Class 172.—One rotary slotting machine—Bidder 160, Niles-Bement-Pond Company, New York, $5500 and $4389; 161, Newton Machine Tool Works, Philadelphia, Pa., $4960, $5110 and $5180; 228, Tindel-Morris Company, Eddystone, Pa., $5893.42.

Class 173.—One pipe expanding and flanging machine—Bidder 129, Larkin Pipe Expanding & Flanging Machine Company, Philadelphia, Pa., $10,000.

Class 174.—One Welding Machine—Bidder 95, Handlan-Buck Mfg. Company, St. Louis, Mo., $263; 98, Hooper Sons Mfg. Company, Philadelphia, Pa., $250; 140, Manning, Maxwell & Moore, New York; $263; 235, Vermilye & Power, New York, $270.

Bids were opened at the office of the Isthmian Canal Commission September 8 for a number of oil furnaces, delivery New York, as follows:

Item 1. One crucible melting furnace for a No. 80 crucible.

Item 2. One forge furnace with two charging doors.

Item 3. One bolt and rivet making furnace, with two charging openings on sides.

Item 4. One bolt heading furnace, with two opposite charging openings.

Item 5. One forge furnace, with two opposite and charging openings.

Item 6. One brazing furnace.

Item 7. One flue welding furnace, with three charging openings arranged.

Item 8. One portable furnace for locomotive repair work.

Item 9. One rivet heating furnace, with one charging opening.

Item 10. One rivet heating furnace, with two charging openings.

Item 11. One portable rivet heating furnace, to be used with pneumatic riveter.

Kenworthy Engineering Company, Waterbury, Conn., item 1, $234.50; 2, $340; 3, $325; 4, $290; 5, $600; 6, $210; 7, $340; 8, $150; 9, $160; 10, $250; 11, $100; time, 30 days.

Manning, Maxwell & Moore, New York, item 1, $150; 2, $245; 3, $350; 4, $150; 5, $750, $790 and $600; 6, $150; 7, $130 and $155; 8, $140; 9, $100 and $85; 10, $180; 11, $150; shipment, eight weeks.

Mires Fuel Oil Equipment Company, Norfolk, Va., item 1, $375; 2, $425; 3, $375; 4, $350; 5, $500; 6, $285; 7, $475; 8, $160; 9, $250; 10, $375; 11, $550.

Bids for one 25-hp. electric motor for the Atlanta Penetentiary, Georgia, were opened September 9, as follows:

Burke Electric Company, Erie, Pa., $458; Lincoln Electric Company, Cleveland, Ohio, $375; Philadelphia Electric Construction Company, Philadelphia, Pa., $584.50; Northern Electric Company, Madison, Wis., $400; Electric Dynamo Company, Bayonne, N. J., $595; Fred W. Walter, Norfolk, Va., $504; Kaestner & Co., Chicago, Ill., $508 for Western Electric motor, $487 for own motor; Diehl Mfg. Company, Elizabethport, N. J., $489 for No. 2 weatherproof wire, $610 for No. 000 weatherproof wire; Holtzer-Cabot Electric Company, Brookline, Mass., $728; General Electric Company, Baltimore, Md., $490 and $396; Crocker-Wheeler Company, Ampere, N. J., $525; D'Olier Engineering Company, Philadelphia, Pa., $625; Westinghouse Electric & Mfg. Company, Atlanta, Ga., $493; B. F. Sturtevant Company, Hyde Park, Mass., $671.

Under opening of September 1, for two steam pile driving hammers for the Isthmian Canal Commission, the bid of Vermilye & Power, New York, $810, has been accepted.

Under bids opened August 24, Circular No. 459, for supplies for the Isthmian Canal Commission, class 13, 34 hydraulic jacks, has been divided, the Joyce-Cridland Company, Dayton, Ohio, having been awarded contract for all of the 10-ton jacks at $402.60, and Fox Brothers & Co., New York, the remainder of the jacks at $1381.

HARDWARE

PRIOR to 1907 the great commercial panics were strikingly alike in their effect upon business conditions, however much else they may have differed in other results. Immediately following the falling off in demand came an equally drastic shutting off of supply. Mills were closed down, furnaces blown out and the wheels of manufacturing stopped. In all branches of business there was wholesale discharge of employees, and those who were fortunate enough to hold their jobs felt the sharp pruning knife of trenchant reductions in salaries. The ruthless logic of the apparent necessity of self-preservation was the only guide. The desire to produce cheaply and to sell cheaply dominated business, and the attempt to force articles upon a market already bare of demand accentuated the downward movement in prices. Distress as a result was widespread and severe, and no relief was had until an abnormally low level of prices was reached and depleted stocks called for replenishment until demand finally exceeded supply and the upward movement began.

When the panic of 1907 came so suddenly last fall, a similar repetition of the past was naturally predicted by observers and students of the past. These, however, reckoned without their host, as is the fate of most prophets, for since the last great panic of 1893 two hitherto little known factors had come upon the scene—a humanitarianism manifested in a regard for the general welfare, and the controlling force of aggregation of interests in the steel and iron trade. As the leading interest in this line had prevented a runaway market during boom times, it now set itself to the gigantic task of upholding prices and of preventing that disastrous slump that had marked all similar previous periods. Speculation is pardonable as to the motives which prompted this stand, and as to how much shall be ascribed to long-headed and advanced wisdom, and how much to political influences. A Presidential campaign was in sight, and whether from politics or humanitarianism or both, it was not possible to contemplate calmly extensive cuts in wages and the tumbling down of the commercial edifice, the result of so many years of prosperity.

The influence of this pronounced example was at once widespread and beneficial. Discharges of unnecessary men were plentiful enough, but those who retained their places suffered but comparatively few cuts in wages and salaries. It was felt that employers must make some sacrifices rather than couple the paradoxes of decreased wages with increased cost of living to their employees, because the necessities of life still maintained a higher level than ever before. There was also a long-headed determination to preserve working organizations intact at any cost. There was little attempt to force goods upon an unwilling market, and those who endeavored to get business by cutting prices found but small response from their trade. Goods were only bought as they were needed and prices were a minor consideration. The Atlas-like task of upholding the world of prices had been successfully accomplished by the most tremendous exertions, and the enormous power of aggregated industries had successfully stayed what had hitherto been regarded as the inevitable result of hard times. Such liquidation as ensued was orderly and in sequence.

Now that we have definitely passed the barriers of hard times, and when better things are looming up, the question naturally occurs, Has there been sufficient liquidation before we can mount healthily to a higher basis? Would it have been better to have let nature take its course, or must we sooner or later get down to a lower level before we can start up again to a more permanent foundation? As against these natural queries it has to be suggested that possibly we have learned to control events to some degree instead of abandoning ourselves helplessly to them, and that because of many factors, among which is the continued output of gold, the commodities of life and trade are on a permanently higher level of prices, and may be naturally expected to appreciate still more, and that we are now unconsciously going through a period of general and extensive readjustments. The future alone can answer these questions, and the wise man is content to observe and watch events for the final reply.

Condition of Trade.

The present month is marked by a good degree of quiet activity on the part of merchants throughout the country in taking care of current business and in getting things into shape for the fall and winter trade. A good many assorted orders are thus going to the manufacturers and wholesale houses. The demand upon the manufacturers from the large trade is somewhat uneven and intermittent, September being indeed in some respects not quite so active as some weeks in August, when many of the jobbing houses placed orders covering their requirements for a while. On the whole the market seems to be getting into better condition with a gradual movement in the direction of a fair volume of business. Prices continue fairly steady, but with slight changes here and there. The prices of a good many goods in the line of specialties and articles of minor importance when the market as a whole is considered are being revised by the manufacturers, and in some cases moderate reductions are being made. The market has, however, a decidedly firmer tone than a month or two ago. Goods in many cases cost nearly as much as they did a year ago, as wages are not materially lower. Many manufacturers, however, are anxious for orders, and concessions are obtainable in many lines, staple and otherwise, by those who are willing to buy even fair lots. There are, on the other hand, several leading lines in which prices are firmer, partly as a natural reaction from very low figures, which crowded if they did not pass below the cost mark, and partly as the result of a very commendable determined effort by the manufacturers to preserve the market from demoralization. The quickened demand also, which has set in during the past few weeks, has undoubtedly had a good effect on values. It is a feature of the market that out of regard for the stability of prices and the general support of the market some large manufacturers are showing remarkable self-control in holding prices when competitors are securing business by making slight concessions from the general, and in some instances, the regular or agreed prices.

Chicago.

While the past week has developed no market movements of striking importance it has nevertheless empha-

sized the fact that continued progress toward normal activities is being made, which if not as rapid as might be desired is none the less encouraging. There is now undeniable evidence of an increased demand, not only in lines that have all along been comparatively strong, but in others which have been inactive and even stagnant. Some of the latter have benefited directly from the more liberal purchases of supplies by the railroads and a more cheerful spirit pervades this section of the market. But whatever gains are noted in the general distribution of goods, whether from manufacturers' or jobbers' stocks, may be taken as an index of the measure of increase in consumption; for buyers, both large and small, are still sailing close to the wind in the matter of anticipating requirements. In commenting on this phase of the situation a prominent manufacturer of Builders' Hardware cited the unusually large proportion of orders offered for shipment by express. These are far in excess of any like period in the history of the concern, and a very liberal share of them is contributed by the large jobbers. Moreever, the character of these express orders plainly indicate the extremity of stock reductions, since they frequently include items which are commonly carried in quantities ample to supply any ordinary demand. Like conditions in heavy goods are evidenced by the instructions for prompt execution and shipment which generally accompany orders to be shipped by freight. However, the conservatism which such policies reflect is by no means a sign of weakness, but, on the contrary, may be regarded as one of the important elements of strength underlying current conditions. Fortunately, there is nothing in the situation at the present time to incite or foster a speculative spirit in buying, and the burdens of overstocks arising from purchases made in anticipation of rising values do not figure among the commercial and industrial problems now confronting merchant and manufacturer. There are now very few Hardware lines but what are reported to be at least a little more active than they were a month ago, and the representatives of manufacturers are more generally beginning to note improvement in their sales. Following the recent withdrawal of prices by the manufacturers of Machine and Carriage Bolts new discount sheets are being sent out, in which a revision of prices is made resulting in an advance from 5 to 10 per cent. Western dealers anticipate a good trade in Field Sporting Goods as soon as the shooting season is fully open. Shipments of Loaded Shells, Ammunition, Guns, &c., have been going forward in liberal volume for several weeks, and orders for these goods are still fairly numerous. Forward orders for fall goods placed some time ago were very light, and as a result some reorders for Stove Boards and other goods are already beginning to make their appearance. The market is undisturbed by any radical changes or fluctuations in values, and considering the difficulties of the situation prices are fairly well maintained all along the line.

Baltimore.

CARLIN & FULTON.—We are assured by nearly every factory representative who calls upon us, after having made his trip or perhaps just starting upon it, that "there is a better feeling in business," and while they do not state that this improvement on the part of the convalescent patient is manifested in the number or size of orders taken, yet as they all have the same stereotyped statement there must be some basis for the diagnosis of the case.

We do believe that a comparison of the business done by most houses since July 1 with that done during the corresponding time in the years 1905 and 1906 will show that trade is now moving along in a satisfactory manner, even though the abnormal business of 1907 may not be equaled.

It is a matter of general information that the crops of the present year have been immense, and represent in value several billions of dollars, and it is also a fact that nearly every stock of merchandise, whether in the hands of retailers or wholesalers, is depleted and needs replenishing. This means undoubtedly business for the great transportation lines of the country, and it rests largely with the railroads to start the wheels of business at a rapid rate, one great cause of the depression having been their shutting down upon all expenditures and improvements. The railroads still report several hundred thousands of idle cars, but undoubtedly there are included in these numbers thousands which perhaps should be in the scrap pile or in the repair shops, and the expenditure of money for needed betterments would undoubtedly facilitate and help the resumption of business, the lack of which they complain of, and for which condition they are partly responsible.

We are yet to have a few weeks more of political agitation and oratory preceding the Presidential election, but it has been noticeable that during the entire campaign the arguments have been generally free from personal abuse, and the topics discussed are mostly those which one would hear in almost any lecture hall or from the chairs of political economy in any of the universities of our land. It is hardly possible that in the event of either candidate being successful, the policies to be continued or those to be introduced will be of a nature to overturn our Government, and while it has long been the fashion to expect always during a Presidential year a diminished activity in business, there is really but little necessity for it, as business goes along every day, and the mechanic must work, the laboring man must live, and the wealthy man will spend, no matter who may be the fortunate one in the contest.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—Reports of the condition of trade in this section have naturally become a little monotonous because of the fact that nothing of an exciting nature has occurred for quite a while. As the season advances each month shows quite an increase in the volume of business. Crops in this section being now well assured we can reasonably expect a continuance of this increased volume. In fact, the volume of business we are now receiving is not quite as good as it should be in view of the fact that we have made excellent crops in almost every section of the South. The settlement of the strike in the Birmingham District has had a splendid effect on trade in that section. The opening up of the mines and manufacturing plants have given employment to thousands of people who were only occupied in conducting or fighting a strike. They are now engaged in producing wealth, which is better for the prosperity of the country. Pig Iron is pretty firm, and there are no marked declines in prices of Hardware. Collections are not quite as good as they should be at this season of the year, but the small number of failures throughout the territory indicates that there is nothing alarming about the slow collections.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade conditions since our last letter do not evidence any marked improvement, although, we are happy to say, they disclose no retrograde tendency. In other words, orders appear to be of about the same volume as when we last wrote. Prices remain without any special change. The fluctuating share market of the past week, we think, reflects most business conditions. All are hopeful. No one is certain.

We are apprehensive that the disastrous floods which have recently occurred in the South will have a tendency to retard trade in a measure, but we trust not for long, and we feel that the Southern merchants will not be long in recovering from the destructive visitation of the elements.

The Vermont election, which is always looked upon as an index of the sentiment of the people in the Presidential year, has had the effect of steadying business conditions considerably. The question of changing the policies of government is indeed a most serious matter, and we think that most people feel that, "It is better to bear the ills we have than to fly to those we know not of." We can look back, not so very many years ago, when a Presidential campaign had the effect of demoralizing all sorts of trade, and business would not assume its normal conditions until after it was made certain at the polls of the choice of the people. We feel that such conditions do not now obtain, and, while we should

personally deplore a change in the present government, yet we are not one of those who think that should such a change occur the country would go to the "demnition bowwows." We have too much faith in the judgment and sound common sense of the American people. We are very glad indeed that the present campaign is evidently one of education, and in which literature will play a more prominent part than ever. The vilifying of candidates has always been a feature much to be deplored, and the present conditions as they now exist show beyond question that the conscience of the people is becoming better from all viewpoints, and that we, as a great people, are growing better instead of blacker, as some seem to think.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The market is unquestionably gaining strength. Like some giant who has been bound and fettered by mistrust and fear and who now is shaking himself and stretching out for a period of wakefulness and action, so the market has got a move on, to speak in the vernacular. The adjustment of prices has been for the most part made and the long-headed, short-haired buyers are getting in their orders, while cobwebs are being swept from warehouse windows in preparation for the oncoming stock. This means a shifting tonnage, and that means earnings for the railroads. C. O. D. What a juicy business this railroad business would be were it not for the claims and the legislatures! Fortunately enough, prices were held down during the fat years by the controlling interests, so when the panic came, while one might be pestered with his bank account, he was assured of the value of his Nail and Wire piles. There was no crumbling to ashes such as used to mark eras like this in the olden time, when Nails had been premitted to run up to $5 per keg for 10d and Bar Iron to nearly 4 cents per pound. We had to prepare for great shocks in those days, the free competition, the uncontrolled market made such contrasts in our inventories that it was hard to recognize on their pages the same articles one year after another.

Collections are fairly good, the local country banks are well supplied with funds, but in the larger centers rates are now perceptibly hardening, a most healthy sign in itself. The very cheap money offering a little while since has been absorbed, apparently, and that means it will be doing its work where needed and that dividends may be earned on the difference between these latter rates and those we had to pay last fall, for example.

The drought hereabouts is an unhappy feature in the immediate foreground. We have had a dry summer, and the gardens and meadow lands are parched. Corn in the lowlands, still drawing on the moisture of last spring when the Ohio River overflowed its banks five distinct times, is doing well, and this hot September weather is just the thing. State fairs are on in full force, and the automobile is pushing our famous Kentucky horses over the edge of the road. We haven't got these gentlemen with the speed mania properly regulated yet. We hope to in time as we value our lives.

Portland, Oregon.

FAILING-MCCALMAN COMPANY.—We have nothing new to report, and the old saying is again borne out that "No news is good news," for the only thing we can say about conditions in the Pacific Northwest is that they are good and are steadily growing better. Everybody out here is doing more business than at any time before, excepting in the flush times of a year ago, and some of us are even beating that high-water mark quite a way. We certainly hope that the rest of the country is in as good shape as Oregon and Washington.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY.—Trade conditions throughout the corn belt, and east and west of the Missouri River, continue very satisfactory. Business in all lines is flourishing and the volume of goods daily going into consumption continues with a steady regularity.

The prospects for a very large yield of corn are practically assured. The business basis of this part of the country is the crops, which have been excellent for a series of years, bringing substantial values. To this can be added the largely increased productions of live stock, also commanding profitable prices, so that the conditions generally are in admirable shape, and with the required amount of the circulating medium to move Eastward the immense business offering, no obstacles appear in sight to disturb the present satisfactory outlook.

Cleveland.

THE W. BINGHAM COMPANY.—Trade conditions are certainly improving every day. It is quite noticeable in our business by the size of orders we are receiving from salesmen and by mail—that is, orders are longer and for larger quantities. The manufacturers also in this section are putting on an increased force and getting into the old prosperous groove in which they have formerly traveled.

Money matters in this section are quite easy. Savings banks report larger deposits than ever before, and we believe people all over the country have saved more of their funds since the money trouble started last October than ever before. One of our savings banks here reports $36,000,000 deposit, which is the highest mark in the history of their institution, and they say of this amount $30,000,000 consists of ordinary savings accounts. They say also that there has been a net increase of $2,000,000 deposit since the panic started.

All kinds of crops are being gathered, showing very bountiful supplies are coming to us. Fruits such as grapes, peaches, plums, pears, apples and melons never were so abundant in this section, and never were sold at such high prices; in fact, every one all over our country who deals in products that come from the ground have been wonderfully blessed.

Trade and traffic in the General Hardware line is very good, and we are encouraged with the feeling that we are prospering in an even steady volume (no flash in the pan), and we hope it will steadily increase and remain with us; everything portends to rounding up the year's business in a larger volume than we really anticipated. There seems to be a disposition on the part of some to pay more attention to future goods. If the dealers put off ordering they will get left when they want the goods. The manufacturers and jobbers cannot anticipate fully their customers' wants, and they will have to be lenient with the jobbers if they cannot supply them as promptly as they desire. Prices for goods for fall and spring shipment on many articles are permanent, and there is no reason why customers should not anticipate their wants. We have reference now to Meat Cutters, Food Choppers, Axes, Galvanized Ware, Skates and Holiday Cutlery, and many other goods. Orders should be placed now for Shovels, Spades, Lawn Mowers, Rubber Lawn Hose, Scythes, Snaths, &c., for next spring shipment. They will certainly have good trade for these goods, and they had better be prepared for it.

The right kind of encouragement to our railroads, the arteries of our country, will go a long way to keep the wheels of industry humming.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Business continues to be good, improving steadily, but very slowly. The prophets who prognosticated we would be overburdened with business about this time have not quite hit the mark, although they were on the right track. Business is improving steadily. We want to impress this.

One of the most encouraging signs is the revival of new stock orders, of which we have sold a large number lately. When men feel conditions are encouraging enough to start in a new business they certainly have faith in the future of the country in which they embark in business, and there has been a lamentable lack of new stocks up to within a short time. We take it as one of the most hopeful signs of the times for a thorough revival of business.

From many sections we hear reports of a decline in the average amounts of the crops. They are not quite

as good as they had been thought to be a short time back. However, even with this they are excellent, and the farmer will get a lot of money this fall. It will take some little time for it to percolate from the farmer to the dealer and from him to his bankers and his wholesalers. So let us be a little patient and everything will come out all right in a short while. Drought, boll weevil and a few other insidious insects are being talked about in some sections, but the average condition of the crops is mighty fine, and we expect a big business from now on.

Prices are firm, collections are good, and the atmosphere seems to be very cheerful.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—Fall business has set in and promises to be satisfactory. The weather has continued favorable for threshing and getting the crops ready for market, and the movement has already started at a gratifying rate. It has begun earlier than usual, and, as threshing is now well along and the grain is ready for market, it is expected that the railways and elevators will soon be very busy, and, as a result, that collections will show up well.

It now appears that our Northwestern merchants will generally be able to pay up closer than usual.

We always find that some sections are not so well situated, and there will be some territory this year having short crops. But this area is not very large, and in it the crops are not an entire failure, so that on the whole the situation is favorable, and we may reasonably expect a fairly satisfactory closing of accounts by January 1, as well as a good fall trade.

Just now the Northwest is having a spell of very dry, hot weather, the mercury running into the nineties and rain is greatly needed. Forest fires have done large damage in northeastern Minnesota and northern Wisconsin and Michigan, and at this writing the situation is critical, and the feeling of danger to a large section of country is intense. Just now there is some prospect of early rain.

If it comes it will bring great relief. The loss of property is already large, but the danger to still further and greater loss, both of life and property, renders the situation very acute, and a general soaking rain will be thankfully welcomed. It is very fortunate, indeed, that these weather conditions did not come a few weeks earlier, when the crops would have been greatly damaged.

NOTES ON PRICES

Wire Nails.—Conditions in the Wire Nail market appear to be very satisfactory, although business the past week is not quite up to August standard. Demand is about equal to the capacity employed at present by the most prominent manufacturers, and prices are well if not inflexibly maintained by all. Some contract orders are being placed for delivery within 60 days, but the majority of orders cover immediate requirements only. From the requests for prompt shipments it is inferred that jobbers are not materially increasing their stocks. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.95
Carload lots to retail merchants	2.00
Less than carloads to jobbers	2.00
Less than carloads to retail merchants	2.10

New York.—Distribution of Wire Nails in the local market continues moderate, but shows a slight improvement. Some merchants who have recently been buying in small lots have ordered by the carload, which indicates that they see an improved demand ahead. Nails are held on the basis of $2.30 per keg in small lots at store.

Chicago.—Orders have reached a volume about equal in amount to the present active capacity of the leading interest, which is now between 75 and 80 per cent. of the whole; shipments are correspondingly heavy. At the same time buyers are not extending their purchases to cover far ahead requirements, and as a result are quite urgent in their demands for prompt shipment. The mills have only moderate stocks on hand and are not increasing them, so that the situation from start to finish is one of safe conservatism. Prices are unaltered and firm. Quotations are as follows: $2.13 in car lots to jobbers, and $2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—New business being placed with the mills in Wire Nails is holding up remarkably well and promises to be fully as large, and perhaps a little heavier, in September as it was in August. While orders from jobbers are mostly for small lots for current needs, some contracts are being placed for Wire Nails for delivery within 60 days from date. The American Steel & Wire Company and the Pittsburgh Steel Company, the two leading interests in the Wire trade, are operating to about normal capacity, and have a good deal of tonnage on their books. We are advised that regular prices are being maintained. Quotations for base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.95
Carload lots to retail merchants	2.00

Galvanized Nails are quoted at $1 over the price of the regular Nails.

Cut Nails.—An improvement in demand, though slight, is noticed. The bulk of the business received by the mills is still for small lots for immediate shipment. The general market is represented by the quotation of $1.80, base, per keg, f.o.b. Pittsburgh, but $1.75 is the extreme market, on carloads and over, to the large trade. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

New York.—The movement of Steel Cut Nails is moderate and is confined to immediate requirements. They are held on the basis of $2.15 per keg for small lots at store.

Chicago.—While there is a little better demand for Cut Nails, stocks are being diminished slowly, and orders for replenishment are neither large or frequent. But on the whole conditions are improved and the trade is hopeful that a more active market will develop. We quote Chicago prices as follows: In car lots to jobbers, Iron Cut Nails, $2.08; Steel Cut Nails, $1.98. In small lots from store: Iron Cut Nails, $2.25; Steel Cut Nails, $2.15.

Pittsburgh.—There is some improvement in demand for Cut Nails, new orders and specifications against contracts received by the mills being larger than for some time. Buyers are still confining their purchases to small lots for current needs, and there is not much disposition as yet to contract ahead. The general market is represented by the quotation of $1.80, base, per keg, f.o.b. Pittsburgh, but $1.75 is the extreme market, on carloads and over, to the large trade. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

Barb Wire.—Some evidences of the commencement of the Fall demand are seen, but as yet business received by the mills is not large. Regular quotations are reported as being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Chicago.—The fall trade is opening with a fairly satisfactory demand, which it is expected will develop more activity when the season is more advanced. Reports from Western territory indicates a good Fence business, and the bountiful crops harvested and in prospect justify hopes in this direction. Prices, we are advised, are held without deviation. Quotations are as follows: Jobbers, Chicago, car lots, Painted, $2.28; Galvanized, $2.58; to retailers, car lots, Painted, $2.33; Galvanized, $2.63; retailers, less than car lots, Painted, $2.45; Galvanized, $2.75; Staples, bright, in car lots, $2.25; Galvanized, $2.55; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—A few stray orders are coming in, but the Barb Wire trade is dull, as it always is at this season of the year. The Pittsburgh Steel Company is making large additions to its Barb Wire capacity at its mills at Monessen, Pa. Regular prices are reported as being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Plain Wire.—There is an increase in demand for Plain Wire, mills receiving a large number of orders. Specifications on contracts are also being shipped in good volume. Regular prices are reported as being maintained. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of $1.80 for Plain and $2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Chicago.—The demand for Plain Wire is quite satisfactory, and buyers are ordering in larger quantities than for some time past. Specifications against contracts are coming out freely, and there is a general demand for hurried shipments, which are increasing in volume. Fence manufacturers especially are anticipating a good fall trade. Prices continue firm and unchanged. We quote as follows: Car lots to jobbers, $1.98, f.o.b. Chicago, and to retailers, $2.05.

Pittsburgh.—Fence manufacturers and other consumers are placing a larger number of orders than for some time and Plain Wire trade is quite active. Contracts are being placed for delivery ahead, and specifications are coming in quite freely. Shipments by the mills are heavier than for some time, and we are advised that regular prices are being maintained. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of $1.80 for Plain and $2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Shot.—An advance of 5 cents per 25 lb. bag of Drop Shot was put in effect by the manufacturers the 14th inst., the new prices being as follows, subject to usual abatement of 10 cents on ton lots:

	25-lb. bag.
Drop, up to B	$1.80
Drop, B and larger	2.05
Buck and Chilled	2.05
Dust	2.30

Galvanized Ware.—The market for Galvanized Ware is not quite satisfactory to the manufacturers, and conferences within the past few weeks have been held with a view to reaching some understanding by which better prices may be obtained than the low ones which have been current. It is not, however, announced that anything definite has been accomplished along this line.

Tacks.—While the Tack market is not characterized by entire regularity, it has a better tone and the manufacturers are hoping that in the near future the advances which have been made by some of the manufacturers may be put into effect by others. This is, however, a difficult line in which to secure uniformity, and the trade is wondering whether these efforts will be attended by entire success.

Conductor Pipe, &c.—The manufacturers of this line have recently been in conference with a view to getting the market in a somewhat more satisfactory condition and correcting irregularities which have existed. As a result the price on this line of goods is firmer and prices in some cases at least are about 5 per cent. higher. An advance has also been made in Elbows and Shoes, a line in which low prices have prevailed.

Bolts, Carriage and Machine.—An advance in Carriage and Machine Bolts, &c., amounting to about 2½ per cent., has been decided on by a number of manufacturers. This change follows the readjustment and general toning up of this market reported in our columns a week ago. It is hoped that the situation is sufficiently improved to admit of prices being maintained.

Brass Butts.—Owing to new competition in the manufacture of Brass Butts in Western territory, the base price of 55 per cent. discount has been changed to 65 per cent., with the usual extras for quantity and 2 per cent. for cash.

Hinges and Wrought Butts.—The manufacturers of this line of goods have been conferring in regard to the market, and as a result Heavy Strap and T Hinges and leading sizes of Steel Butts were yesterday advanced 10 per cent.

Leather Belting.—An advance of 5 per cent. has taken place in Leather Belting affecting practically all grades of this product. The movement seems to result from concerted action on the part of a number of leading manufacturers, but is based on the high price of Hides and Butts, which have advanced rapidly because of a falling off in the supply. The amount of business is still small and is earnestly solicited by all manufacturers, but there is said to be an appreciable improvement in trade as compared with that of the spring and summer.

Lace Leather.—Reference was made in our columns a few weeks ago to the stiffening of the Leather market, as represented by advances in Leather Belt Lacing. This tendency is emphasized by the fact that leading manufacturers are to-day making a further advance in their extreme prices. The market on Cut Lace may be represented in a general way by a discount of 50 per cent. and on Lacing Sides by a quotation of 23 to 24 cents per square foot.

Window Glass.—Jobbers' stocks are generally light and the demand incident to the approach of cooler weather has necessitated replenishing them to some extent. The wage scale has not yet been settled nor have the arrangements looking to the organization of the hand operated factories been consummated. Uncertainty as to the outcome of these two trade factors is holding back the starting of a large number of the factories. At a meeting of the Eastern Window Glass Jobbers' Association held in Pittsburgh on September 11, it was considered that business did not justify an advance in price, and present quotations were reaffirmed. Manufacturers' discounts, from manufacturers' list of January 1, 1901, are as follows: For A single and double strength Glass, 90 and 15 per cent.; for B single and double strength Glass, 90 and 20 per cent. Eastern jobbers' quotations from jobbers' list, October 1, 1903, for all sizes of single and double strength Glass, covering the territory east of Chicago, is 90 and 20 per cent. discount.

Rope.—Activity shows a moderate degree of increase as some larger orders for Rope are being received by manufacturers. The majority of requirements are, however, for small quantities. Some grades of pure Manila Rope are slightly lower in price. General quotations for Rope 7-16 in. in diameter and larger are as follows: Pure Manila, 9¼ to 9½ cents; Pure Sisal, 7 cents; No. 1 Jute, ¾ in. and up, 5¾ cents; No. 2 Jute, ¼ in. and up, 5¼ cents.

Linseed Oil.—Business is of moderate proportions, covering nearby requirements. The amount and condition of the new Flax Seed crop is still uncertain, although indications point to a yield at least as large as last year. There is an absence of contract buyers, while crushers are not inclined to accept orders for future delivery. Quotations are as follows: Western Raw, car lots, 43 to 44 cents; State and Western Raw, barrel lots, 44 to 45 cents per gallon. Boiled Oil is 1 cent per gallon advance on Raw.

Spirits Turpentine.—The accumulations of stocks of Turpentine at Southern points are considerably larger than in 1907 or the year before, owing to the lack of demand. Low prices have not stimulated buying, which has been confined to immediate requirements. The local market is quiet and prices have fallen off about ½ cent during the week. The New York market is represented by the following quotations: Oil Barrels, 38 to 38½ cents; Machine Made Barrels, 38½ to 39 cents per gallon.

A Patriotic Paint Float

THE float represented in the accompanying illustrations was arranged and used in a parade by Granby Hardware & Implement Company, Granby, Mo. The exhibit of goods was confined to Paint. In Fig. 2 is shown a plan of the float, of which a blue print was made to work by when constructing it. The float was 19 ft. long and 5½ ft. wide at the center. It was built upon a wagon box with five 2 x 4 in. sills across the box, notched down over the edges of the box to prevent slipping; 1 x 4 in. lumber was bent around the outside and nailed to the ends of the sills, which were cut the proper lengths to give the desired shape. From the top of the sides, down 30 in., was hung sign painters' white cloth, and from that to within a short distance of the ground was hung light green cheese cloth, to represent water. Flooring was put on the sills about 18 in. wide on both sides for a distance of 10½ ft., on which to stand the Paint cans. First 15 1-gal. cans of Paint were set on each side of the float, and a frame was built to prevent the cans moving, a partition being put between every five cans. A ½-gal. can was put on the top of each gallon can, and a quart can on the top of each half gallon can. These were crated in the same way. Turrets were made for each end of the ship by cutting a barrel in half and sawing three holes in each half. Six inch stove pipe was projected through the holes to represent guns. These were made by putting a T-joint in each half barrel, to which was attached one joint of pipe at each end and two joints at the center opening, making three guns. Masts were made by using wagon tongues, stood upon the bottom of the wagon box. The fighting tops were made of a Nail keg cut in half and fastened near the top of the tongues. The smoke-

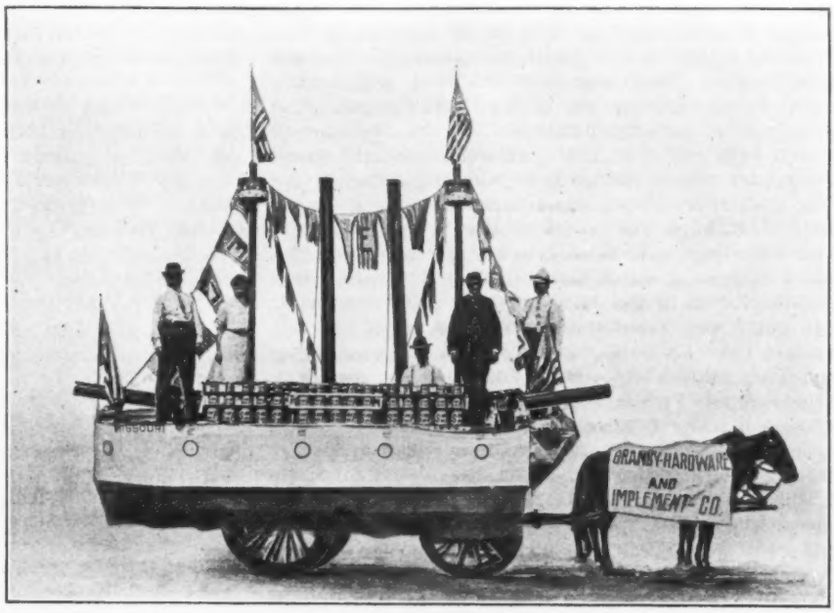


Fig. 1.—A Patriotic Paint Float.

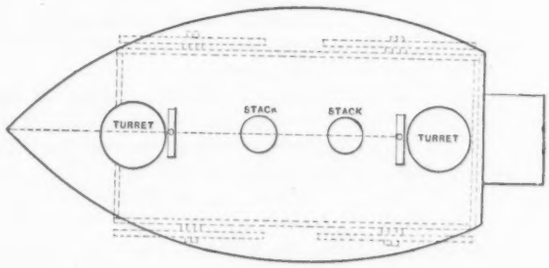


Fig. 2.—Plan of Patriotic Float.

stacks were made of 6-in. Stove Pipe. The top banner was arranged with an American flag in the center, with the words, "These Colors," at one side and "Never Run," at the other, which referred to the stars and stripes, also to the Paint. The float was decorated with flags and bunting, covering all exposed parts, while the crate strips that held the cans were wrapped alternately with red, white and blue. All the work on the float was done by the members and employees of the company without the aid of a carpenter.

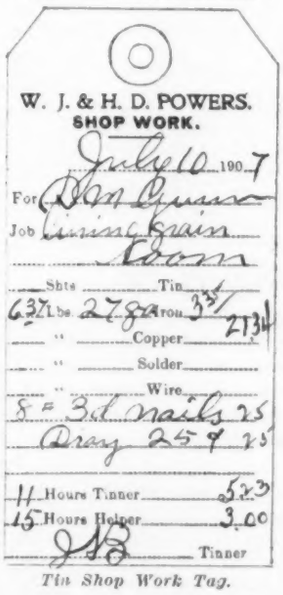
THE LAMB WIRE FENCE COMPANY, Adrian, Mich., has purchased the manufacturing business of the Bell Wire Company, Jackson, Mich., including machines and stock of Elastic Barb Wire. The purchaser will continue the manufacture of Elastic Barb Wire, which it will put out under its own trade name of Peerless.

Window Display Outfit.

TO encourage merchants in putting in a stock of Keen Kutter Safety Razors the Simmons Hardware Company, St. Louis, Mo., is offering to furnish gratis to merchants purchasing two dozen assortments an elaborate window display outfit. It consists of 18 large empty boxes, wired and pasted together with cardboard, so that they will form an arch, a large number of small empty boxes and a liberal supply of posters, display cards, advertising signs, &c. A quantity of light blue paper is also furnished for background, and the effect of the entire display when installed according to the company's design is very striking.

Tin Shop Work Tag.

W. J. & H. D. POWERS, Grand Rapids, Minn., dealing in Hardware, Iron and Steel, Stoves, Paints, Implements, Lumbermen's Supplies, &c., are using the tag here illustrated, reduced in size, in connection with their tin shop work. The tags are in the possession of the tinner, who fills one out for each job, as shown herewith. They are attached to the work done when feasible, or turned into the office, where they are priced. The cost of the work and material is shown on the face of the tag, and the price to be charged the customer is put on the reverse side. The job is then either tagged with the cost and selling price written on another tag, or it is charged to the proper account and the shop tag filed.


W. J. & H. D. POWERS.
SHOP WORK.
July 10 1907
For Don Quinn
Job Tinning Grain Room
Shts Tin
63 Lbs 27 8c Iron 33 1 2734
" Copper
" Solder
" Wire
8 = 3d nails 25
Drag 254 25
11 Hours Tinner 5.23
15 Hours Helper 3.00
JHB Tinner

Tin Shop Work Tag.

N. E. DICKINSON, formerly manager of Estate of John Dickinson, manufacturer of Carbon Tools, is now located at 47 Maiden lane, New York. He will make a specialty of Carbon Points for hard rubber, paper rolls, &c., as well as a full line of Emery Wheel Dressers in every shape, and will shortly issue a new catalogue to the trade.

New England Iron and Hardware Association.

THE annual fall outing of the New England Iron and Hardware Association was held Wednesday, September 9, at Cliff House, North Scituate Beach, Mass. Sixty members and guests left Boston in a special car attached to the 12.45 p.m. train and spent the afternoon in various forms of outdoor amusements. Dinner was served at 6 o'clock, and the return journey to Boston was by the same route, leaving early in the evening. A feature of the afternoon was a golf tournament on the links of the Hatherly Golf Club near the hotel, which were secured through the courtesy of H. A. Whittemore. The tennis courts, baseball grounds and all the privileges of the club were available, and there was no lack of entertainment for all. President A. B. Marble presided at the table, and after dinner some informal speeches were made. H. B. Lupton of the Oliver Iron & Steel Company, Pittsburgh, Pa., made some interesting remarks on the present business situation and outlook. Afterward prizes were distributed to the winners in the golf tournament. H. L. Doten was first with the lowest net score, and will therefore have his name inscribed upon the association cup. This solid silver cup was donated by President Marble and Vice-President Hopkins and will be played for each season. Any member winning it three times will be entitled to keep it. There were four other handsome prizes; one awarded to Mr. Doten, the second to A. H. Decatur, the third to F. L. Butts and the fourth to A. J. Chase. The outing was in every way successful, and great credit is due the officers and committees having it in charge. The chairmen of the several committees for the day were: Arrangements, W. A. Hopkins; Golf, W. S. Locke; Transportation, H. A. Whittemore.

Manufacturers and the Jobbers' Catalogues.

WHILE jobbers much less now than formerly are asking manufacturers to pay for the insertion of their goods in the distributers' catalogues, there is still too much of this done. Some wholesale houses, however, take an independent and dignified stand in the matter and refuse to solicit this aid. In this connection the following letter from Waterhouse & Lester Company, San Francisco, will be of interest. This company is preparing to issue a catalogue and have decided to do so without asking the manufacturers to contribute to the expense. The letter is as follows:

After giving the matter revised consideration, we have decided to withdraw our request for the co-operation of manufacturers in the publication of our catalogue.

Though we have received such a number of favorable replies as in the aggregate to greatly lighten the burden of catalogue publication which must be sustained by us, we have decided to revise our ideas, because we find that the majority of manufacturers look upon "catalogue contributions" in the same light as the public has begun to regard rebates, subsidies, &c., and we therefore believe we will be more up to date, more nearly right, and certainly more independent, by making our catalogue "stand on its own bottom."

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

JUBILEE MFG. COMPANY, Omaha, Neb.: Illustrated descriptive booklet relating to the Jubilee Self-Heating Iron. This is a sad iron carrying a gasoline tank.

MARLIN FIREARMS COMPANY, New Haven, Conn.: 1908 catalogue illustrating and describing the complete line of Marlin Rifles and Shotguns. Repeating Rifles are illustrated in popular calibers, from 0.22 to 0.45 in many different models. Repeating Shotguns are shown in 12 and 16 gauges and in many models, weights and grades. The catalogue also includes all the Cartridges used in Marlin Rifles, and gives much information relative to Powders, Bullets, Sights, care of Guns, &c.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM BUXTON & SMITH, who have succeeded Williams & Buxton, Newport, Ore., handling Shelf and Heavy Hardware, Stoves, Tinware, Sporting and Athletic Goods.

FROM AYRES & GALLOWAY, Middletown, N. Y., who have purchased a three-story building, 40 x 118 ft. in size, and will enlarge their business. The store will be equipped with electric elevator, cash system and rolling ladders. The firm carry Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods, and also do plumbing, heating and tin work.

FROM V. A. HEMSTREET & BRO., Augusta, Ga., who lost all their catalogues relating to Sporting Goods and kindred lines in the recent freshet.

FROM CHARLES SHLOSBERG, 210 Third street, Elizabeth, N. J., handling Shelf and Heavy Hardware, Plumbers', Tinners' and Roofers' Supplies.

Trade Items.

THE ROCHESTER CASTER & TOOL COMPANY, Rochester, N. Y., B. C. Mathes, president, has been incorporated for the manufacture of Casters of all kinds for metal beds and wood furniture. The company is now located in its own factory and has installed modern machinery for the manufacture of its line, which will include a new ball bearing Caster on which a patent has recently been issued.

THE sales department of the American Steel & Wire Company, Chicago, has issued a paper referring to Horse Shoes, entitled "Juniata News," which will form one of its regular series of publications. While devoted particularly to Juniata Horse Shoes, the publication is designed to contain general information of value to horseshoers and blacksmiths. There is, for instance, in the present issue, an illustrated article pointing out the opportunities for the blacksmith in repairing automobiles. Other illustrated articles, written by men of practical experience, are on the subjects, "Should Horseshoers Be Licensed?" "Welding Steel," and "Wearing One Side of the Shoe More Than the Other."

THE name of the Hurwood Mfg. Company, Bridgeport, Conn., manufacturer of Tubular Lanterns and Food Choppers, has been changed to John A. Hurley, Inc. The officers are the same as before. A new corporation simply takes the place of the old, the only change being in name.

THE AMERICAN SALES COMPANY, Commercial National Bank Building, Chicago, Ill., which is the distributing agency for a number of Wire Cloth factories, at its annual meeting held last week, elected the following officers: Frank Low, president; C. L. Hoff, vice-president; H. W. Seaman, treasurer; C. K. Anderson, secretary and general manager.

THE MASSACHUSETTS SAW FILE WORKS, Chicopee, Mass, manufacturer of Victor Hack Saw Blades, &c., has removed its London office to 31 Bartholomew Close, London, E. C.

ROBT. H. INGERSOLL & BRO., whose main office is at 45-49 John street, New York, has opened a branch office at 200 Magill street, Montreal, through which all business in the Dominion will be conducted hereafter.

WILLIAM WILKENING has succeeded to the Hardware business of Albert Rothermel, 432-434 East 149th street, New York. Lines handled include Builders', Contractors', Cabinet and Factory Hardware, Cutlery, &c. Attention will also be given to locksmithing and electrical contracting.

HARDWARE FREIGHTS.

Collection of Claims Against Railroads.

THERE is scarcely any business subject that requires so much care in correspondence as the collection of claims against railroads. There are some claim departments that honestly seek to get at the facts and pay what is due within a reasonable time, but they are exceptions. The Pennsylvania claim department has actually been known to advise a shipper that he had made an error in figuring what was due him, and should have made his claim for a larger amount, but the great majority of claim agents wait until the shipper has presented overwhelming proof of his loss, and then seek a compromise. It is necessary that the shipper should be very exact in stating the facts, but, having stated them, he should be emphatic in standing on his rights. It is useless to claim more than what is fair and right, as this merely delays settlement and often affords good grounds for refusing to recognize the claim.

Exact in Facts, Emphatic in Rights.

It will be found very inconvenient to keep correspondence regarding claims in an ordinary alphabetical file. One should have the entire record of a claim before him in writing to a claim agent, so the letter can be framed directly to the point, and it is therefore very important to have all letters from the road, and, if possible, carbon copies of all letters addressed to the local agent or the claim agent, filed together on each claim. Hardware merchants who have a vertical filing cabinet can do this very easily. Instead of filing the correspondence alphabetically, a separate folder can be marked for each claim, and these folders can be kept together.

Systematic Filing of Claim Details.

Where folders are not used a large manila envelope can be marked for each claim, putting enough information on the outside of the envelope regarding its contents to save time in checking up. A plan that answers the purpose just as well is to attach all letters and papers regarding a claim to a heavy sheet of paper, cut letter size. The collection can then be filed flat in a drawer or box file, or folded with the cover sheet outside, to be filed in pigeon holes. The greatest advantage in filing claims by either of the methods suggested is that it only takes a few moments to look over an entire file of claims and see whether the claim agent is taking too much time to reply to the last letter addressed to him.

Another Method of Filing.

Somewhere in a book or on the cover sheet of the papers referring to each claim, a careful record should be made of all the documents or papers that have been sent to the railroad. It is important, also, to keep a record of the railroad's file number of the claim, and this number should always be used in writing letters. The claim agent keeps all correspondence regarding a claim in one cover or envelope, which is given a number, and his clerks are not likely to give attention to an inquiry unless it shows this number. The clerk who replies may merely write a general "jolly," stating that they are giving the matter careful attention, but need further time for investigation and so forth, but if the claim number is given they will look it up.

R. R.'s File Number of Claim Important.

The railroad usually has a tedious routine to go through in the investigation of a claim, and it actually takes two or three months on many roads to go through this routine. When a merchant finds that they do get through within a reasonable time, it is useless to inquire oftener than once in 30 days, as too frequent inquiries will only bring evasive replies. When, however, a reasonable time has elapsed, it is just as well to let the claim agent know from time to time, in language that will grow in emphasis as time passes, that a settlement is expected. A great deal of the delay is due to the fact that many of the roads want to locate the responsibility for the trouble, so they can call some employee to account for it.

A Tedious Routine.

The St. Paul road and several other Western lines have adopted the commendable plan of settling the claim first, as soon as the actual merits are determined, and looking up the matter of personal responsibility afterward, but the majority of the roads cling to the old plan of making complete investigation before payment. They justify a delay of two or three months by the argument that the merchant whose goods are lost or damaged usually buys on 60 or 90 days' credit, and they see no reason for settling in less time.

Some Roads Settle Promptly.

The most troublesome feature of the claim question is that a large proportion of the claims presented to railroads are "declined." The merchant may be firmly convinced that the railroad is liable, but the claim agent is equally positive in asserting that he cannot recognize the claim. In perhaps the majority of cases the claim agent is right. There are many cases of loss for which the railroad is not legally liable, even though it may seem to the layman that it should be responsible. In some of the States the carrier is not liable for a fire loss, after the goods have been unloaded and stored in a depot, or after a car has arrived and notice has been given to the consignee. Other States make the railroad responsible for fire losses for a definite time, usually two days, after arrival, but when this time has expired the owner must bear the loss by fire, unless the railroad has been careless or negligent. The claim agent is not likely to misrepresent the facts in such cases.

Railroads Not Liable in Many Cases.

Where the damage was due to carelessness in packing, the railroad can usually evade responsibility by showing that there would have been no damage if the goods had been properly packed. In such a case the merchant should charge the loss back to the shipper whose negligence caused the damage. The same rule would apply where the damage was due to some inherent "vice" or defect in the goods. For example, a casting or some wooden article may break in a flaw, and there is reason to believe that if the article had been sound it would not have been damaged in handling.

Careless Packing and Defects in Goods.

A great deal depends upon the report which the local agent makes regarding the condition of the goods at the time of delivery. If he has any grudge against the merchant who brings in a claim he has every opportunity to prevent settlement or to cut down the amount, by the report which he makes when he forwards the papers to the claim department. If the agent does not give proper attention to claims and make fair reports, there should be an association of merchants in the town to collect the necessary evidence and have the company employ an agent who will deal fairly with the patrons of the road.

Local Agent's Influence.

Some railroads try to follow a rule that they will not "voucher" claims for less than a dollar. They do not follow this rule in all cases. The catalogue houses get their claims paid for amounts less than a dollar, and a railroad should not discriminate against its home merchants. A local or State association of Hardware merchants can make itself very useful when any railroad enforces an arbitrary rule of this character against its members. These associations can bring great influence to bear with a railroad, as the experience which railroad officials have had in legislative matters in recent years has made them careful not to take unfair advantage in their dealings with organizations of business men.

Hardware Associations Exert Influence.

The best plan of all, however, for the Hardware merchant is to have the jobber or manufacturer from whom he buys the goods settle the claims against the railroads. They usually have a traffic manager or claim clerk who understands the ins and outs of the work, and there is a growing tendency among jobbers and manufacturers to protect their customers and give them credit when the merchant sends in proofs of the loss. This, in fact, is the prevailing custom of the country. The Hepburn law makes it possible for the

Recourse to Jobbers or Manufacturers.

shipper to recover from the initial line, no matter how many roads a shipment may have passed over on a long haul.

National Mfg. Company's Catalogue.

THE NATIONAL MFG. COMPANY, Worcester, Mass., has issued a new catalogue which will interest the trade, not only because of the lines described and listed with copious illustrations, but because of its convenience and scope. Many additions to the company's lines are shown. Since the issue of the previous catalogue new ideas have been introduced into the product, and the lines have been reclassified and rearranged. Alphabetical arrangement has been followed in the catalogue with the use of single and sequential numbers so far as possible, the letters indicating different series of the same item. The illustrations are in panels, each page containing a photographic reproduction of the goods shown upon it, extending the vertical length of the page and filling a broad space on the inner margin. Against each panel is the list of the goods which it illustrates with order number, size and price. The line is an extensive one, including Wire Baskets for many purposes, Strainers and the many other articles now fashioned from Wire. Attention is called to the company's sample room, a corner of which is shown in an illustration, with wall and counter displays of goods. Another page shows the display of the company at the House Furnishing Exhibition at Madison Square Garden, New York, in 1906. The frontispiece is a full page engraving of the company's factory, with the large extension recently occupied, and on another page are views within the works.

Wyeth Hardware & Mfg. Company.

THE WYETH HARDWARE & MFG. COMPANY, St. Joseph, Mo., is planning to erect in the near future a building to occupy half a block, which will cost in the neighborhood of $200,000. When completed the building is to be used exclusively for the wholesale Hardware business and for the main offices of the company. According to intentions the building will have a frontage of 240 ft. and a depth of 130 ft. It will have six stories and basement, with a total floor space of about 360,000 sq. ft. Construction will be the most substantial, and all facilities and equipment will be modern and efficient in every respect. All negotiations regarding real estate, trackage, &c., have not yet been completed, but it is hoped that they can be arranged satisfactorily so as not to interfere with the company's plans.

Gifford-Wood Company's Catalogue.

GIFFORD-WOOD COMPANY, Hudson, N. Y., and Arlington, Mass., has issued a catalogue illustrating and describing its elevating and conveying machines and ice tools. The machines include those necessary for handling ice at ice houses, while the tools are those used in harvesting ice. The company is making the designing and manufacturing of Elevators and Conveyors for handling coal a special feature, these being included in its coal machinery catalogue.

S. P. BJORKLUND, Milwaukee, Wis., is making a specialty of compiling and editing Hardware catalogues referring to general Hardware, Heavy Hardware, Machinery, Saddlery and the various lines of fancy goods usually carried by the trade. He also handles catalogues for manufacturers. Mr. Bjorklund, who has spent years in the Hardware business, and has also a knowledge of printing, employs a force of experienced compilers and is prepared to get out a catalogue of a firm's entire stock or product, with little or no attention to the details of the work on their part. He refers to the fact that he is prepared to handle work from all parts of the country to equally good advantage.

O. H. WITTE, president of the Witte Hardware Company, St. Louis, Mo., who for the past three months has been traveling in Europe, will sail for home on September 15.

CONTENTS.

	PAGE.
The Cables for the New Manhattan Bridge. Illustrated	767
The Iron and Steel Institute	769
A Boiler Test Showing Efficient Mechanical Stoking. Illus.	770
Pig Iron in France	772
A Sellers Motor Driven Drill Grinder. Illustrated	772
The Bridgeford Heavy Gap Lathe. Illustrated	773
The Production of Chromite in 1907	773
The Oesterlein Vertical Milling Attachment. Illustrated	774
The Port Arthur and Soo Plants	774
The Bonney Automatic Reversible Tapper. Illustrated	775
The Proposed Iron Combination in Russia	775
The Wright Separable Metal Barrels. Illustrated	776
The New Open Hearth Plant at Ohio Works, Carnegie Steel Company	778
Customs Decisions	778
The Insley Controllable Center Dump Buckets. Illus.	779
An American Exhibition in London	779
The Roechling-Rodenhauser Electric Furnace. Illustrated	780
The New Federal Trademark Law	783
The Koppers Improved Ammonia Recovery Plant. Illus.	784
Canada's Grangers Oppose Bounties and Duties	785
A New Blast Furnace Igniter. Illustrated	786
The American Locomotive Company	787
Editorial:	
German and American Iron Trades Under Depression	788
Incorrect Industrial News	788
An Error to Be Avoided in Machine Design	789
The Uniform Bill of Lading	789
Correspondence	790
New Publications	790
Export Iron Bounties in Germany	791
The New Jones & Laughlin Office Building	792
Personal	793
Obituary	793
A Retort Coke Oven Association Proposed	793
Cincinnati Industrial Excursions	794
Two Millions for Ensley Improvements	794
News of the Works:	
Iron and Steel	795
General Machinery	795
Power Plant Equipment	795
Foundries	795
Fires	795
Miscellaneous	795
The Iron and Metal Trades:	
A Comparison of Prices	796
Chicago	796
St. Louis	798
Pittsburgh	799
Birmingham	801
San Francisco	801
Cincinnati	802
Philadelphia	803
Cleveland	804
New York	805
Metal Market	805
Iron and Industrial Stocks	806
Trade Publications	806
The Machinery Trade:	
New York Machinery Market	807
Chicago Machinery Market	808
Cincinnati Machinery Market	808
Cleveland Machinery Market	809
New England Machinery Market	809
Philadelphia Machinery Market	810
Government Purchases	811
Hardware:	
Condition of Trade	812
Notes on Prices	815
A Patriotic Paint Float. Illustrated	817
Window Display Outfit	817
Tin Shop Work Tag. Illustrated	817
New England Iron and Hardware Association?	818
Manufacturers' and the Jobbers' Catalogues	818
Price-Lists, Circulars, &c	818
Requests for Catalogues, &c	818
Trade Items	818
Hardware Freights	819
National Mfg. Company's Catalogue	820
Wyeth Hardware & Mfg. Company	820
Gifford-Wood Company's Catalogue	820
Store of Steiner & Voegtly Hardware Company. Illus.	821
Fine Steel Wool	823
Robin Egg Blue Enameled Ware	823
The Norleigh Diamond Barn Door Hanger and Track. Illustrated	823
The Corbin Universal Liquid Door Check	823
Miller Night Latch Display Board. Illustrated	823
The Norleigh Diamond Sewing Machine	823
Star Drill Holder. Illustrated	824
The Spizli Shaft or Pole Coupling. Illustrated	824
Linduro Enamel	824
Campaign Solidhed Thumb Tacks	824
Truck Wheels Fitted with Roller Bearings. Illus.	824
The Cutler-Hammer Push Button Switch Mechanism. Illustrated	825
Speed Counter. Illustrated	826
The Newsam Cooker. Illustrated	826
Enameled Churn. Illustrated	826
Zimmerman's Anti-Sag Strap Hinge. Illustrated	827
Current Hardware Prices	828

STORE OF STEINER & VOEGTLY HARDWARE COMPANY.

AN admirably arranged retail establishment is that of the Steiner & Voegtly Hardware Company, 230-234 Diamond street, Pittsburgh, Pa., to which the accompanying illustrations relate. The building, entirely occupied by the company, is 40 ft. wide, three stories and basement.

As shown in the floor plan, Fig. 1, the store has two entrances, one at each side. The depth of the left hand half of the salesroom is 125 ft. At the back, and in the rear on this side is the bookkeepers' office. The other side of the salesroom extends back 85 ft., at the end of which is the private office.

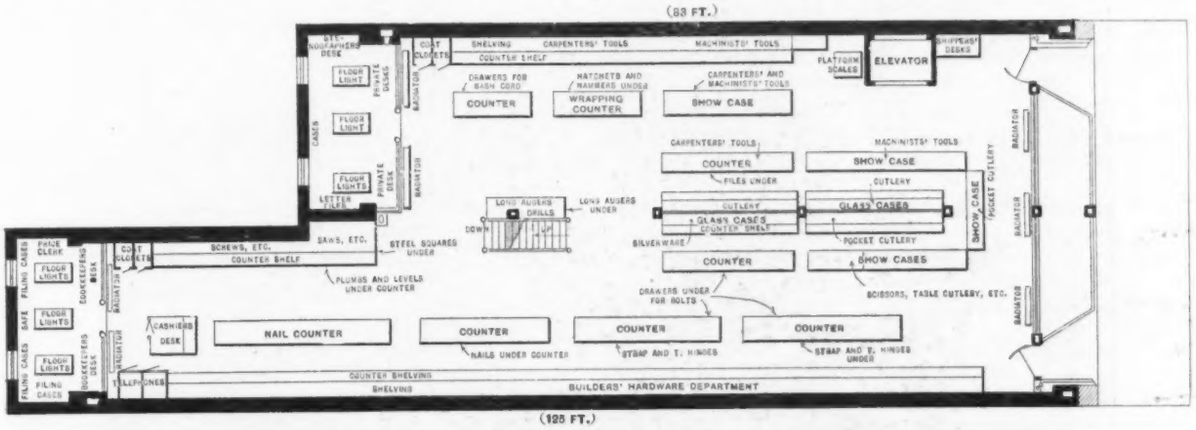


Fig. 1.—Floor Plan of the Steiner & Voegtly Store.

The Show Window.

The show window, Fig. 2, is 27½ ft. long at the back and 6 ft. deep. The two front lights of plate glass, which are divided by an iron column, are each 10 x 10 ft. in size, and the two side lights are each 10 ft. by 6 ft. 8 in. The two lower lights of plate glass at the back of window are each 5 ft. 6 in. high by 12 ft. 8 in. long, and each sash weighs 400 lb. These are hung on pulleys and counterbalanced by using a 200-lb. weight in each of the boxes at the outside ends and a 400-lb. compound pulley weight in the center box. Either of the heavy sash can be raised with one hand quite easily. Four-in. extra heavy Morton's sash pulleys and Morton's cable chain are used to operate the windows. Fig. 2 also shows the two side, or wall, cases, which are each 6 x 5½ ft. in size.

The display in the large show window is changed every week, and the company refers to its window as attracting more attention and advertising the house more effectively than any other means. The side wall cases, in which fine mechanical tools are sampled in one and Saws in the other, are arranged with track on the floor and large display boards having ball bearing sheaves attached ft. long and 16 in. deep. This side of the store is principally devoted to Builders' Hardware, Silver Ware, Cutlery, &c. All shelving throughout the store is 3 ft. between uprights and arranged to suit the stock.

Shelving and Showcases.

A feature of the shelving is that it is built in sections, 3 ft. high and 9 ft. long, so that it can be easily moved to another building if desired. To accomplish this every third pilaster, which is beaded, can be taken off by removing the screws which hold it in place, the bolts holding the sections together at the ends being then taken out and the screws which hold the cornice in place removed.

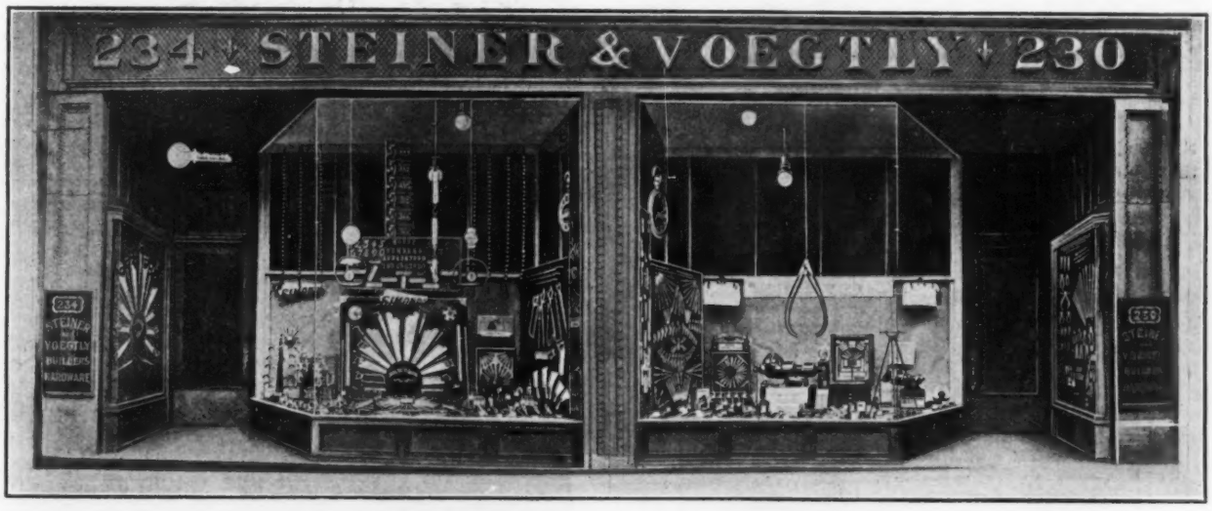


Fig. 2.—The Two Large Show Windows.

The sections of shelving can thus be taken down like a pile of boxes.

The depth below all ledges is 30 in., and this space is arranged with paneled drop doors which can be slid back at the top out of the way, like drop fronts on sectional glass bookcases. This has been found an excellent arrangement for keeping dust and dirt from the goods when sweeping. All shelving, showcases and counters on this floor are of hardwood antique, finely finished. The center front of the store has lower shelving similar to that just described, with top cases on both sides backing up against each other, Fig. 3. These cases are 4 ft. high

and 15 ft. long. Large plate glass showcases are located on both sides and in front of these cases, with plenty of space to get around comfortably.

All counters are 12 ft. long, with 30-in. tops, and all space underneath is utilized, bins being provided for Nails, Strap Hinges, Hatchets, Hammers, Files, &c.

Fig. 3.—View of Left-Hand Side of Store.

Entering the door at the right-hand side is the desk of the shipping clerk. Next is the elevator, and beyond that a platform scale. Then come shelving and counters devoted to mechanics' and machinists' tools.

Swinging Sample Boards.

In Fig. 4 is a view of two sample doors, attached to the shelving, upon which tools are sampled. Doors of this kind extend from the third section to the rear of the shelving. The doors are of finely veneered hardwood,

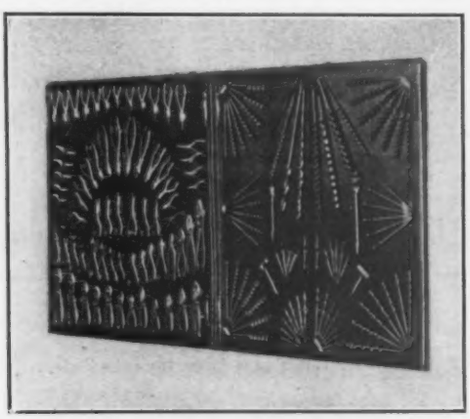


Fig. 4.—Swinging Sample Doors.

each ⅞ in. thick, 18 in. wide, and 3 ft. high. The same system is used for sampling Builders' Hardware. Goods are kept in the shelves back of the doors, and each door is kept tightly closed by a spiral spring. One end of the spring is hooked over a screw hook, and can be easily unhooked to permit the door to remain wide open when taking goods from the shelving behind the door.

Fig. 5.—Saws, Plumbs and Levels and Squares.

Saws, Plumbs and Levels, and Squares.

The section of shelving shown in Fig. 5 is located near the bookkeepers' office. Above the ledge the shelving is deep enough to take the longest Rip Saw boxes endwise. The space below the counter ledge is used for Plumbs and Levels, which are also accommodated endwise. In the cupboard at the front of the shelving is a space devoted to Steel Squares. The boxes from which to retail are kept on the two upper shelves, the shelf next to the top one not being as deep as the one above by 3 in., to provide space for the hanging tongues from the top shelf. The third and fourth shelves are the same depth as the second, and on them surplus stock is laid flat. This arrangement is so economical that the four shelves accommodate 12 dozen Squares.

Fig. 6.—One of the Top Sample Cases.

Sample Rooms.

In the front part of the second floor of the building are two sample rooms, the furniture and fixtures of one being all solid mahogany, the other being fitted up in natural oak. The two are divided by a frosted glass partition with connecting door. The lower sample cases are all arranged with drawers, while the upper cases have sliding drawers with open sides, the bottoms being hinged at the rear to hanging stiles, as shown in Fig. 6. When a drawer is pulled out, it drops down, displaying the largest pieces of Builders' Hardware. The rooms are separated from the balance of the floor by a plate glass partition.

The Norleigh Diamond Sewing Machine.

The latest addition to the sewing machine line of Norvell-Shapleigh Hardware Company, St. Louis, Mo., is a lock stitch machine. It has a positive cam take up which is said to be only used on machines of the highest grade. The machine is furnished with a needle guard, which forces the needle into the proper position; also automatic lever, ball bearing stand and full high arm, which is nickel plated and finished in several colors of enamel. The woodwork is fine quarter sawed oak and the machine is fully guaranteed in every way.

Fine Steel Wool.

The American Steel Wool Mfg. Company, 451-453 Greenwich street, New York, has added to its line of steel wool in small packages, now on the market, No. 00, which is finer than anything previously offered and is recommended for the very finest rubbing. The threads of which this product consists are said to be as fine as hair, but very uniform and producing the highest grade of work. An advantage of this product to which attention is called is that it can be used on moldings and irregular surfaces, as well as on plain finishes. Steel wool is said to be taking the position of a staple article in hardware stores, its features of excellence as an arbrasive being more and more recognized.

Robin Egg Blue Enameled Ware.

Lalance & Grosjean Mfg. Company, 299 Broadway, New York, has just put on the market the Robin Egg Blue enameled ware, which has been brought out in a complete line of the shapes manufactured by the company in housefurnishing and kitchen utensils. It is a two-coated ware, consisting of first a mass coat and followed by the robin egg coating, with a white lining inside. The tint is an excellent reproduction in color of the shell of a robin's egg, from which it derives its name.

The Norleigh Diamond Barn Door Hanger and Track.

The accompanying illustrations of barn door hanger and track represent new goods put on the market by Norvell-Shapleigh Hardware Company, St. Louis, Mo. The particular feature of the device is the construction of the track, which is round, and is put up in 2-ft. lengths, which, it is remarked, obviates the necessity of a merchant carrying more than one lot of track. The joints fit together, it is said, so that there is no bumping or jarring when the wheels pass over them, and the rail is guaranteed to be as strong at the splice as at any other point. The hanger and hood are made of one piece of malleable iron. The wheels have very wide grooves and run on hardened steel roller bearings to reduce the friction to a minimum. There is a projecting

Norleigh Diamond Barn Door Hanger and Track.

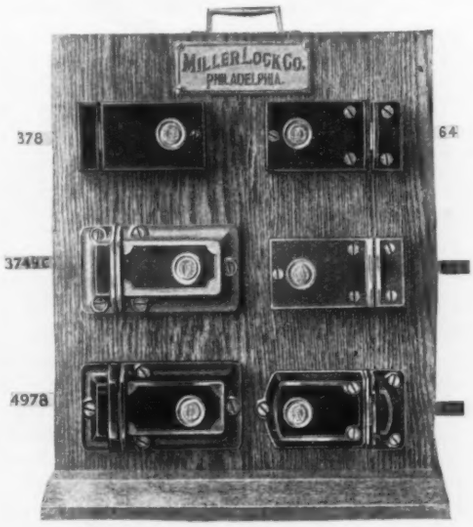
lip below the wheels to prevent the hanger from jumping the track.

The Corbin Universal Liquid Door Check.

P. & F. Corbin, New Britain, Conn., are putting on the market a liquid door check and spring that embodies all of the strong qualities of their former check and the convenience of being both right and left hand. This feature obviates the necessity of the merchant or user designating whether a right or left hand check is required for a door. The difficulty of applying a check where the style of door or the construction of the casing will not admit of check and spring being attached in the regular manner has been overcome by the use of special brackets made for the purpose.

Miller Night Latch Display Board.

The Miller Lock Company, Frankford, Philadelphia, Pa., has put out an attractive display board for showing night latches, reproduced in the accompanying illustration. As shown, the board carries one each of the

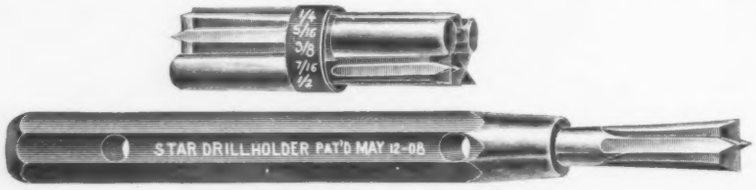


Miller Night Latch Display Board.

company's Nos. 64, 65C, 4978, 3749C, 378 and 170 latches. If this assortment does not represent a merchant's stock other numbers can be mounted, as desired. The boards are packed in wooden cases and crated 1 doz. to the crate.

Star Drill Holder.

The accompanying illustrations show a drill holder with drill points which has been put on the market by the Star Expansion Bolt Company, Bayonne, N. J., and 147 Cedar street, New York. The holder is made of steel, and while comparatively light and easy to carry around is solid and substantial enough to admit of taking a firm hold and striking a heavy blow without danger, it is stated, of breaking the smallest drill point. Bits of ¼, 5-16, ⅜ and 7-16 in. in diameter may be had, all sizes fitting the holder equally well. A hole will be observed in the tool near the socketed end. After a drill has been used it, of course, becomes firmly set in the socket, but it may be readily started by driving through this hole a taper key which is furnished with the tool. In recommending the holder the manufacturer states that it prevents breaking and wearing down drill heads, which are necessarily light, especially in the case of fine drills. The company also states that besides being economical in this respect, it also permits of considerable saving in the first cost of drills, since points for this tool are much less expensive than ordinary drills. It is pointed out that the tool will prove a great convenience to men who have had to carry around a number of drills of different diameters, all in full 12-in. lengths, since the entire set of Star special drills, with the holder itself, may be carried in the pocket without annoyance from their weight or bulk.



Star Drill Holder and Drills.

The Spitzli Shaft or Pole Coupling.

The improved device for attaching the shafts or pole to a carriage, shown herewith, also acts as an effective antirattler. The lever turning to the rear is said to obviate any possibility of weeds or brush catching in the lever when driving over rough country. The device is manufactured by Fernald Mfg. Company, North East, Pa.

The Spitzli Shaft or Pole Coupling.

Linduro Enamel.

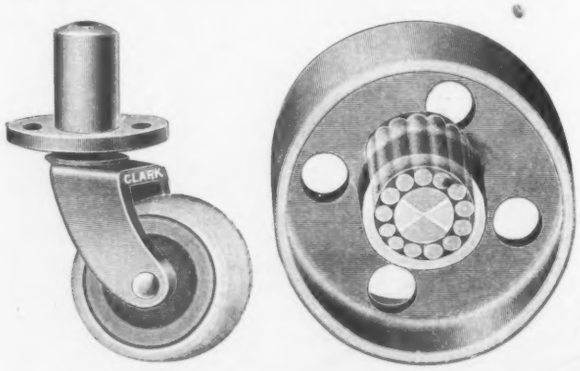
The Lowe Brothers Company, Dayton, Ohio, is now prepared to supply its Linduro enamel in any quantities that may be desired. The product is designed for use on wood, plaster, brick, stone, cement, metals, porcelain, concrete, glass and paper, and on buildings, furniture, bathtubs, cars, boats, &c., in short, wherever a hard, durable surface is desired. It is referred to as having a high gloss that is hard and clear, and as showing no laps or brush marks. It may also be rubbed to a dull finish. The company claims that the enamel will not crack, peel, check, chalk or fail in other ways. It is made in white, cream and ivory, ready for use on the finest work, and may be tinted as required to carry out any scheme of decoration.

Campaign Solidhed Thumb Tacks.

The Hawkes-Jackson Company, 38 Murray street, New York, originator and maker of Solidhed thumb tacks, has put on the market a line of campaign thumb tacks. They resemble the regular styles made in solid colors in celluloid for decorative hanging, but have portraits of the two leading Presidential candidates. Samples will be promptly sent gratuitously. The company states that this particular departure is not designed so much for the trade in campaign material as to emphasize the adaptability of any decorative figure, letter or symbol to the ⅝-in. surface tack head, as, for instance, educational or society figures. The regular line, the sale of which is said to be continually increasing in the hardware trade, is obtainable in brass, German silver, &c., both with tapered and sharply beveled edges, and in various diameters. They are put up in attractive counter display assortments, having 12 and 24 tacks on a wood block, and are applicable not only to drafting and drawing uses, but to the fastening of desk blotter sheets, the hanging of signs, pictures, draperies, &c. The tapered steel pins may be easily pushed into wood, plaster, cardboard or kindred substances and instantly withdrawn without appreciably marring the surface. These tacks are also manufactured entirely of brass, with figures for identifying the correct position of window and door screens.

Truck Wheels Fitted with Roller Bearings.

The accompanying illustrations represent the internal and external appearance of truck wheels fitted with roller bearings, as manufactured by the George P. Clark Company, Windsor Locks, Conn. It is explained that a truck fitted with these bearings is much more responsive thus enabling the user to draw a heavier load; also that they insure a longer life for the axle, as the natural tendency of the pins is to roll around the axle and not rub, as is the case with a wheel fitted to an axle without this arrangement. The company fits any truck with the roller bearings at a small additional cost. The pins are made of hardened steel to give long service, and can be easily replaced by any one, even though inexperienced in machine work. The company uses the roller bearing on all of its trucks put out with its paper board drying system, and states that they are giving perfect satisfaction.



Truck Caster Complete and Separate Wheel Showing Roller Bearings.

Harter & Vorhis have succeeded C. A. & J. C. Harter in the Hardware business at Bloomfield, Iowa.

The Cutler-Hammer Push Button Switch Mechanism.

The Cutler-Hammer Mfg. Company, Milwaukee, Wis., manufacturer of electric controlling devices, is introducing a line of push button switch specialties, some forms of which are shown in the accompanying illustrations. As shown in Fig. 1, the mechanism consists of three moving parts—a push bar extending clear through the switch, a coiled steel spring and a moving contact piece. These, with the fixed contacts, constitute the entire mechanism. The push bar is largest in the center and tapers toward either end. The coiled spring fits inside the contact piece, and in assembling the push bar is slipped through the spring and contact piece, the ends of the bar projecting from circular holes in the porcelain pieces, forming push buttons for operating the switch. If, when the circuit is open, the white centered end of the button is pushed, the spring expands as the wide central portion of the push bar passes through it, and then suddenly contracting on the tapering portion of the push bar, it snaps the moving contact piece over on to the fixed contacts, closing the circuit. Pushing the opposite end of the push bar reverses this operation and opens the circuit with a quick snap. The lava push bar moves back and forth through the switch in a straight line, without possibility of strain and with a minimum of friction. The action is positive and snappy in either direction, the mechanism giving a quick "make," as well as a quick "break," the movement of the contact piece being the same, whether either end of the push bar is moved fast or slow. It is pointed out that the snappy action of the device reduces arcing to a minimum, and that such slight arcing as does occur is confined to a separate porcelain chamber away from the circuit wires and terminals. Fig. 2 shows a brass cap porcelain pendent switch, actual size, in which the mechanism is inclosed. The interior of the switch, showing how the mechanism is assembled in the pendent, is illustrated in Fig. 3. Liberal space is provided for knotting the flexible cord, and the removal of one screw gives access to the interior of the switch, making wiring an easy matter. Each pendent switch and lamp socket is supplied with a movable fiber bushing, reducing the size of the outlet to the diameter of standard cord. When reinforced cord is used the bushing is removed. A porcelain surface switch, for concealed work, is shown, actual size, in Fig. 4. This is also made for molding work and can be furnished in either style with label holder, as shown in the illustration, or without, as desired. Fig. 5 shows a vest pocket model, actual size, of the mechanism only and is called by the company its silent salesman.

Push Bar Extending Clear Through the Switch.

Coiled Steel Spring. Moving Contact Piece.

Fig. 1.—Push Button Mechanism.

Fig. 5.—Vest Pocket Model of the Mechanism.

Fig. 2.—Brass Cap Porcelain Pendent Switch.

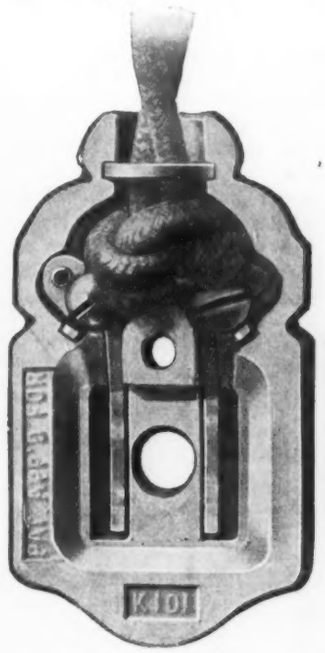
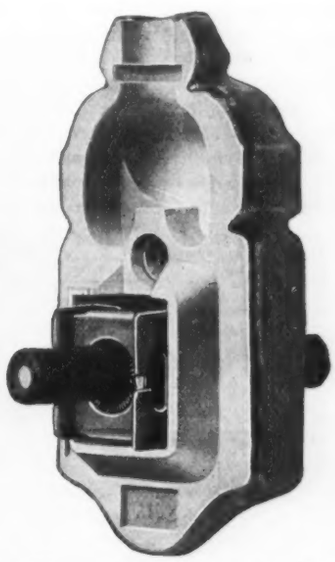


Fig. 3.—Interior of Switch, Showing How Mechanism Is Assembled in the Pendent.



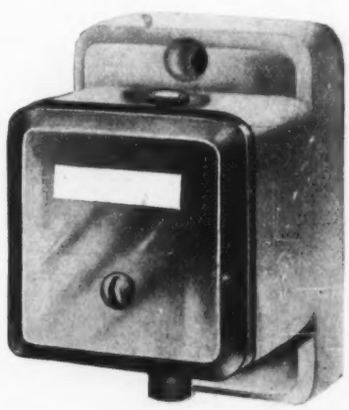


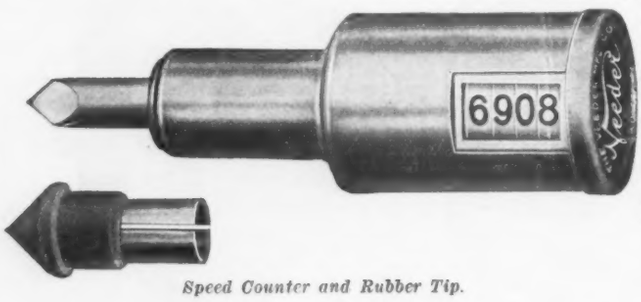
Fig. 4.—Porcelain Surface Switch for Concealed Work.

H

The model was gotten up for the purpose of making clear to inquirers the degree of simplicity attained in the switch mechanism. The company will send one of the models free to any one interested in this line of apparatus. The push button specialties made by the company are of porcelain, which is a noncorrosive and nonconductive material. Therefore they will not tarnish, and it is explained that the user cannot possibly receive a shock while handling them, because all metal parts are incased in porcelain. The fire glaze used on the porcelain is practically indestructible, while a choice of colors is offered, so that a shade can be selected that will harmonize with almost any surroundings. The standard glazes are plain white, ivory tint, wood brown and neutral gray. Special glazes can be furnished to order. In addition to the use of these devices in residences, stores and other buildings, they are recommended by the maker for use by proprietors of seaside and mountain resorts, ship owners, superintendents of mines, steel mills, foundries, chemical works and for all places where electrical fittings are exposed to moist atmosphere or acid fumes. It is stated that the devices have the approval of underwriters.

Speed Counter.

The Veeder Mfg. Company, Hartford, Conn., has just put on the market a new speed indicator, unique in design and different from others on the market. It uses for the registering apparatus one of the revolution counters made by this company, as shown herewith, and requires a complete revolution of its shaft to register one unit. The instrument is capable of being run up to 10,000, which gives it capacity enough for all ordinary cases. It works equally well at high or low speed, although the limit of speed for which the instrument is



Speed Counter and Rubber Tip.

recommended is about 5000 rev. per min. It can be used at even higher speeds, but the wear is much greater at these excessively high speeds. When it is desired to use the counter its point is placed against the center of the shaft whose speed it is desired to measure. A watch is held in one hand, the counter in the other. The operator after having placed the point of the counter against the end of the shaft need only look at the watch. When the second hand of the watch gets to the beginning of a minute a slight pressure on the end of the counter forces the main body of the counter ahead, making the two parts of a clutch engage. The counter instantly begins to register and will continue to do so until the pressure is relieved. This may be done either at the end of a minute or any fraction thereof. If a count is wanted for a longer period it can be taken equally well. The operator merely releases the pressure at end of the desired time and the counter stops registering. To determine the actual number of revolutions the reading of the counter must be taken before starting the count, as no set-back arrangement is provided for bringing the register back to zero, since it is believed that this would make the instrument unreliable. It is not much trouble to jot down the reading of the register at the beginning and at the end of the period for which the count is taken. The difference between the two readings gives the count for the period desired. The counter works equally well in either direction. When run one way it subtracts; when run the other it adds. In either case the difference of the readings gives the actual count. The manufacturers claim that with this counter an absolutely accurate count can be obtained because the count does not begin until the operator desires, but does begin at that instant. The instrument is extremely compact, weighs but a few ounces, and is comfortable to hold in the hand. Its readings are said to be reliable because of the direct reading index. It is not rendered inaccurate by a strong magnetic field. Where it is desirable to use the counter in connection with electrical machinery a rubber tip, as shown in the illustration, is provided, which effectually insulates the counter from any current there may be in the machinery.

The Newsam Cooker.

The utensil shown in the accompanying illustration is a new device to facilitate cooking, which has just been put on the market by William Newsam, 302 Mayer Building, Peoria, Ill. It consists of a thin cast plate with concentric notched rings on one side upon which the cooking vessel rests. The purpose of this arrangement is to provide a circulation of air beneath the cooking vessel which will temper excessive heat and prevent burning. It is claimed that by its use cereals, vegetables and meat can be cooked without the danger of burning, which is always present when the cooking vessel sets upon a flat, hot surface. It is also recommended for heating irons, for which purpose the cooker is placed over the flame with the flat side up. For all cooking operations, however, the flat side is placed downward. It is designed for service in connection with both gas and gasoline stoves, and can be conveniently used on coal or wood stoves; when used on the latter it is not necessary to remove the stove lids. A circular wire toaster is being offered in connection with the cooker, which is used with cooker flat side up, in which position it is said to give good results. Both the cooker and the toaster are offered in lots of one gross or less.

The Newsam Cooker.

Enameled Churn.

The Enterprise Enamel Company, Bellaire, Ohio, manufacturer of a line of enameled ware sets and specialties, is making the enameled churn here illustrated. It is made of heavy steel and porcelain lined. In describing its advantages the company states that it will not leak or break, is not affected by heat or dampness, freezing or boiling, does not get musty, and is as easily cleaned as a crock. It has the regular wooden cover and old-fashioned dasher, but also has an enameled cover, so that it can be used between times as a tight vessel for holding provisions which must be kept dry and out of the way of flies and mice.

Enameled Churn.

Zimmerman's Anti-Sag Strap Hinge.

Harry Zimmerman & Co., Fremont, Ohio, is manufacturing the fire shutter hinge shown in the accompanying illustrations. It is a strap and pintle hinge, strongly made of malleable iron, and is said to have the most metal where it needs the greatest strength. The makers state that it cannot sag or twist and explain that the upper flange, Fig. 1, constitutes a key which holds the pintle in rigid alignment. Fig. 2 shows the manner in which a wall is cut away to admit the hinge, the hole through the pintle being large enough to admit a standard bolt or lag screw. It can be attached to wood, brick, stone or cement. Hinges are listed under stock numbers and the list shows the length, width and thickness of the strap and the size of bolt used with it, as well as the pintle number and the size of the bolt used with the pintle.

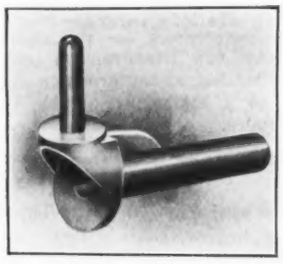


Fig. 1.—Zimmerman Anti-Sag Strap Hinge, Pintle with Flange.

Fig. 2.—Zimmerman Hinge, Set in Wall.

W. F. Smith, Hale, Mo., has sold out his Hardware and Lumber business to W. E. Thomas.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal.
Linseed, State and Western, raw	@45
City, Boiled	@46
City, Raw	@45
Raw, Calcutta, in bbls	@71
Lard, Prime, Winter	@70
Extra No. 1	@52
No. 1	@49
Cotton-seed, Crude, f.o.b. mill	@29½
Summer Yellow, prime	39½@40
Summer White	@44
Yellow Winter	@46
Tallow, Acidless	@58
Menhaden, Brown, Strained	@36
Northern Crude	@..
Southern	@..
Light Strained	@36
Bleached Winter	@39
Ex. Bleached Winter	@41
Cocoanut, Ceylon	℔ 6¼@6½
Cochin	℔ 7 @7¼
Cod, Domestic, Prime	@40
Newfoundland	@42
Red, Elaine	@40
Saponified	℔ 5¾@5⅞
Olive, Yellow	@95
Neatsfoot, Prime	@58
Palm, Lagos	℔ 5¾@6

Mineral Oils—

	℔ gal.
Black, 29 gravity, 25@30 cold test	@13½
29 gravity, 15 cold test	13½@14
Summer	12½@13
Cylinder, light filtered	20½@21
Dark, filtered	@19
Paraffine, 903-907 sp. gravity	14½@15
903 sp. gravity	13½@14
883 sp. gravity	@11½
Red	13½@14

Miscellaneous—

Barytes:	
White, Foreign	℔ ton $18.50@20.50
Amer. floated	℔ ton 17.00@18.00
Off color	℔ ton 12.50@15.00
Chalk, in bulk	℔ ton 3.00@3.40
China Clay, Imported	℔ ton 11.50@18.00

	℔ gal.
Cobalt, Oxide	℔ 100 lb 1.45@2.60
Whiting, Commercial	℔ 100 lb 42@52
Gilders	℔ 100 lb .55@.60
Ex. Gilders	℔ 100 lb .60@.65

Putty, Commercial—℔ 100 lb

In bladders	$1.70 @1.80
In bbls. or tubs	1.20 @1.45
In 1 lb to 5 lb cans	2.65 @2.95
In 12½ to 50 lb cans	1.50 @1.90

Spirits Turpentine—℔ gal.

In Oil bbls.	39 @39½
In machine bbls.	39½@40

Glue—

	℔ lb
Cabinet	12 @15
Common Bone	7½@9
Extra White	18 @24
Fish, liquid, 50 gal. bbls., per gallon	60 @1.20
Foot Stock, White	12 @14
Foot Stock, Brown	9 @11
German Common Hide	10 @12
German Hide	12 @18
French	10 @40
Irish	13 @16
Low Grade	10 @12
Medium White	14 @17

Gum Shellac—

	℔ lb
Bleached, Commercial	23 @24
Bone Dry	27 @28
Button	30 @40
Diamond I	40 @42
Fine, Orange	34 @35
A. C. Garnet	27 @28
G. A. L.	20 @21
Kala Button	18 @19
D. C.	42 @43
Octagon B	39 @40
T. N.	25 @26
V. S. O.	40 @42

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	36 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	12 @16
Green, Paris	@24
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White and Red, Lead &c.—

	℔ lb
Lead, English white, in Oil	10⅛@10⅝
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	7
Dry and in Oil, 25 and 50 lb kegs	7¼
Dry and in Oil, 12½ lb kegs	7½
In Oil, 25 lb tin pails	7½
In Oil, 12½ lb tin pails	8
In Oil, 1, 2, 3 and 5 lb tin cans, ass't	9
Red Lead and Litharge:	
In 100 lb kegs	7
In 25 and 50 lb kegs	7¼
In 12½ lb kegs	7½
In lots of less than 500 lbs, ½c ℔ lb advance over above prices of White and Red Lead and Litharge.	
Lead, American. Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	

Zinc, Dry—

	℔ lb
American, dry	5⅛@5⅝
Red Seal (French process)	6¾@7
Green Seal	7¼@7½
German Red Seal (French process)	6⅝@7
Green Seal	7¼@7⅝
White Seal	7¾@8¼
French, Red Seal	8⅜@8⅞
Green Seal	10⅝@10⅞

Dry Colors—

	℔ lb
Black, Carbon	6½@10
Black Drop, American	3½@8
Black Drop, English	5 @15
Black, Ivory	16 @20
Lamp, commercial	4 @6
Blue, Celestial	4 @6
Blue, Chinese	31 @33
Blue, Prussian	29 @31
Blue, Ultramarine	3½@15
Brown, Spanish	½@1
Carmine, No. 40	$3.10@3.25
Green, Chrome, ordinary	3½@5
Green, Chrome, pure	17 @25
Ocher, American	℔ ton $8.50@16.00
American Golden	2¼@3¼
French	1¼@3
Foreign Golden	3 @4
Orange Mineral, English	10 @12
French	12¾@13
German	12 @13
American	9 @10
Red, Indian, English	4½@6
American	3 @3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer.	℔ 100 lb $0.50@1.25
English	℔ 100 lb $1.15@1.60
Sienna, Italian, Burnt and Powdered	3 @9
Italian, Raw, Powdered	3 @7
American, Raw	1¼@2
American Burnt and Pow'd	1½@2
Talc, French	℔ ton $18.00@25.00
American	℔ ton 15.00@25.00
Terra Alba, French	℔ 100 lb .90@1.00
English	℔ 100 lb .80@1.00
American	℔ 100 lb, No. 1, .75@.80
American	℔ 100 lb, No. 2, .60@.65
Umber, T'key, Bnt. & Pow.	2¾@3
Turkey, Raw and Powdered	2¾@3
Burnt, American	1¼@2
Raw, American	1¼@2
Yellow, Chrome, Pure	13¾@15
Vermilion, American Lead	7 @25
Quicksilver, bulk	.65 @..
Quicksilver, bags	@66
English, Imported	.65 @70
Chinese	$0.90@1.00

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

ISSUED EVERY THURSDAY MORNING.

Subscription, postpaid, $5.00 a year.

TWO DOLLAR EDITION, $2.00 a year; DOLLAR EDITION, $1.00 a year, to the United States, Mexico, Hawaii Cuba, Philippine Islands. OTHER COUNTRIES: Weekly Edition $7.50; Semi-monthly Edition, $4.00; Monthly Edition, $2.50.

ADVERTISING RATES ON APPLICATION.

New York (Main Office)	14-16 Park Place,	DAVID WILLIAMS CO., Pub.
Philadelphia,	Real Estate Trust Co. Bldg., Broad and Chestnut Sts.,	S. S. RECKEFUS, Manager.
Pittsburgh,	Park Building, 357 Fifth Avenue,	ROBERT A. WALKER, Manager.
Chicago,	Fisher Building, Dearborn and Van Buren Streets.	A. A. AINSWORTH, Manager.
Cincinnati,	Pickering Building, Fifth and Main Streets,	HENRY SMITH, Manager.
Boston,	Compton Building, 161 Devonshire Street,	WALTER C. ENGLISH, Manager.
Cleveland,	The Cuyahoga, 311 Superior Street,	EZRA S. ADAMS, Manager.

Remittances should be made by Draft, payable to the order of DAVID WILLIAMS COMPANY on any banking house in the United States or Europe, or by Post Office, Bank or Express Money Order on New York. When those cannot be obtained, postage stamps of any country will be received.

Newsdealers or Booksellers in any part of the world may obtain *The Iron Age* through the American News Company, New York, U. S. A. The International News Company, New York, U. S. A., and London England; or the San Francisco News Company, San Francisco, Cal. U. S. A.

ENTERED AT THE POST OFFICE, NEW YORK, AS SECOND CLASS MATTER

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1907, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Columbian and Domestic....33⅓%
North's....10%
Upson's Patent, ℔ gro., $29.90....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent....35%
Ives' Stop Bead Screws and Washers....10%
Taplin's Perfection....35%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti—Rattlers—
Fernald Mfg. Co. Burton Anti-Rattlers, ℔ doz. pairs, Nos. 1, $0.75; 2, $0.60; 4, $1.00; 5, $0.50.
Fernald Quick Shifter, ℔ doz. pairs....$2.00@$3.00

Anvils—American—
Eagle Anvils....℔ lb @8 ¢
Hay-Budden, Wrought....9½@9¾¢
Trenton....℔ lb 9½@9¾¢

Imported—
Swedish Solid Steel Sisco, Superior, ℔ lb....10@10½¢
Peter Wright & Sons, ℔ lb, 81 to 349 lb, 11¢; 350 to 600 lb, 11½¢.

Anvil, Vice and Drill—
Millers Falls Co., $18.00....15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co....10%

Augers and Bits—
Com. Double Spur....75&10@80%
Jennings' Patn., Bright.65&10@70%
Black Lip or Blued...65@65&5%
Boring Mach. Augers....70%
Car Bits, 12-in. twist....40&10%
Ford's Auger and Car Bits....40&5%
Ft. Washington Auger Co., Conard's....35%
Forstner Pat. Auger Bits....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list, 25&7½%
No. 30, R. Jennings' list....50%
Russell Jennings'....25&10&2½%
L'Hommedieu Car Bits....15%
Mayhew's Countersink Bits....45%
Pugh's Black....20%
Pugh's Jennings' Pattern....35%
Snell's Auger Bits....60%
Snell's Bell Hangers' Bits....60%
Snell's Car Bits, 12-in, twist....60%
Snell's King Auger Bits....50%
Swan's....65&10@70%
Swan's, Jennings' Pattern....50%
Wright's Jennings' Bits....50%

Bit Stock Drills—See *Drills, Twist.*

Expansive Bits—
Clark's Pattern, No. 1, ℔ doz., $26; No. 2, $18....60&10%
Ford's, Clark's Pattern...60&5@60&10%
C. E. Jennings & Co., Steer's Pat...25%
Lavigne Pat., small size, $18.00; large size, $26.00....60&10%
Swan's....60%

Gimlet Bits—
	Per gro.
Common Dbl. Cut	*$3.00@$3.25*
German Pattern, Nos. 1 to 10,	*$4.75; 11 to 13, $5.75*

Hollow Augers—
Bonney Pat., per doz...$5.50@6.00
Ames....20&10%
Universal....20%

Ship Augers and Bits—
Ship Augers....40&10@—%
Ford's....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's....6%
Watrous'....33⅓&7½%
Snell's....48%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled....gro. $2.75@3.00
Unhdled, Shildered...gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@31¢
Unhdled, Shildered..gro. 63@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket.gro.$11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights: Per doz.
First Quality....$4.75@5.00
Second Quality....$4.25@4.50
Double Bit, base weights:
First Quality....$7.00@7.50
Second Quality....$6.50@6.75

Axle Grease—See *Grease, Axle.*

Axles—Iron or Steel.
Concord, Loose Collar...4¼@4½¢
Concord, Solid Collar....4½@5 ¢
No. 1 Common, Loose...3½@4 ¢
No. 1½ Com., New Style.4¼@4¾¢
No. 2 Solid Collar....4¼@4¾¢
Half Patent:
Nos. 7, 8, 11 and 12....70%
Nos. 13 to 14....70%
Nos. 15 to 18...70&10@70&10&5%
Nos. 19 to 22...70&10@70&10&5%

Boxes, Axles—
Common and Concord, not turned....lb., 5@6¢
Common and Concord, turned, lb., 6@7¢
Half Patent....lb., 9½@10¢

Bait—Fishing—
Hendryx:
A Bait....20%
B Bait....25%
Competitor Bait....20&5%

Balances—Sash—
Caldwell new list....50&10%
Pullman....50&10%

Spring—
Light Spring Balances..60@60&5%
Chatillon's:
Light Spg. Balances....50@50&10%
Straight Balances....40@40&10%
Circular Balances....50&10%
Large Dial....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb.... per lb., 2¼@2¼¢

Towel—
No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beam, Scale—
Scale Beams....40%
Chattillon's No. 1....30%
Chatillon's No. 2....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.80; Tinned....$0.85
No. 11 Wire Coppered ℔ doz. $1.15; Tinned....$1.20
No. 10 Wire Tinned....℔ doz. $1.50

Beaters Egg—
Dover Stamping & Mfg. Co.:
Genuine Dover, per gro., No. 1, Tumbler Size, $7.50; No. 2, Family Size, $7.50; No. 3, Extra Family Size, $24.00; No. 4, Hotel Size, $30.00.
Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd. $0.80; No. A, Jap'd, $1.15; No. B, Jap'd, $1.85; No. 6, Jap'd, $1.65.
Lyon, Jap'd, per doz., No. 2, $1.35.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.40; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.

Bellows—
Blacksmith, Standard List:
Split Leather....60&10@65%
Grain Leather....50@50&10%

Hand—
Inch..	6	7	8	9	10
Doz..	$5.00	5.50	6.00	6.50	7.50

Molders—
Inch..	10	12	14	16
Doz..	$7.50	9.00	12.00	15.00

Net Prices.

Bells—Cow—
Wrought Cow Bells....75%
Jersey....75&10%
Texas Star....50%

Door—
Home, R. & E. Mfg. Co.'s....55&10%

Hand—
Polished, Brass....60@60&10%
White Metal....60@60&10%
Nickel Plated....50&10%
Swiss....50&10%
Cone's Globe Hand Bells....33⅓@35%

Miscellaneous—
Farm Bells....lb., 2¼@2½¢
Church and School....60@60&10%

Belting—Leather—
First Quality, Ex. Hy., Strictly Short Lap....60&10%
Standard....70&10@70&10&5%
Light Double....75&10%
Cut Leather Lacing..50&10@60%
Leather Lacing Sides, per sq. ft. 22@23¢

Rubber—
Competition (Low Grade)....70&10@75%
Standard....60&10@70%
Best Grades....40@50%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Green River Tire Benders and Upsetters....20%

Bicycle Goods—
John S. Leng's Son & Co.'s 1908 list:
Chain, Parts, Spokes....50%
Tubes....60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks Tackle—
Common Wooden....75@75&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior....30%
See also Machines, Hoisting.

Boards, Stove—
Paper and Wood Lined....55%
Embossed....55%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co....33⅓&10%

Bolts
Carriage, Machine, &c.—
Common Carriage (cut thread):
⅜ x 6 and smaller..75&5@—%
Larger and longer....70@—%
Phila. Eagle, $3.00 list...80@—%
Bolt Ends....70@—%
Machine (Cut Thread):
⅜ x 4 and smaller..75&10@—%
Larger and longer....70@—%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knobs:

Inch	3	4	5	6	8
Per doz.	$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:

Inch	6	8	10
Per doz.	$1.20	1.50	2.25

Cast Iron Chain, Flat, Japanned:

Inch	6	8	10
Per doz.	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd, Brass Knobs:

Inch	6	8	10
Per doz.	$0.75	.95	1.25

Wrought Barrel Japanned, 80&10@80&10&5%
Barrel Bronzed....60&10%
Spring....70&10@70&10&10%
Shutter....50&5@50&10&5%
Square Neck....75@75&10%
Square....70&10&10@80%
Ives' Mortise....10%
Ives' Wrought Metal....10%

Expansion—
F. H. Evans' Crescent....40@60%
Richards Mfg. Co....55&10%
Star Expansion Bolt Co.:
Star, Lag Screw Type..60&10&5&2½%
Star, Wood Screw Type....40%
Star, Machine, Single Wedge....60%
Star, Machine, Double Wedge....60%
Steward & Romain Mfg. Co.:
Style No. 13, Double....60%
Style No. 1, Single....60%
Style No. 100, Dbl. Jaw, Single..55%
Lag Screw....66⅔%

Plow and Stove—
Plow....65&5@70%
Stove....85@85&5%

Tire—
Common Iron....80%
Norway Iron....80%
American Screw Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Bay State, list Dec. 28, '99....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Eclipse, list Dec. 28, '99....80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99....80%
Norway Phila., list Oct. '84....80%
Eagle....82½%
Shelton Co.:
Tiger Brand, list Dec. 28, '99....80%
Phila., Eagle, list Oct. 16, 1884..82½%
Upson Nut Co.:
Tire Bolts....72½%

Borers, Bung—
Borers Bung, Ring, with Handle:

Inch	1¼	1½	1¾	2
Per doz.	$4.80	5.60	6.40	8.00
Inch	2¼	2½		
Per doz.	$8.65	11.50		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.75; No. 3, $2.50 each....25%

Boxes, Mitre—
C. E. Jennings & Co....25%
Langdon, New Langdon and Langdon Improved, 20&10%; Langdon Acme....15&10%
Perfection....40%
Seavey....45%

Braces—
Common Ball, American....$1.50
Barber's....50&10&10@60&10%
Fray's Genuine Spofford's....60%
Fray's No. 61, 166, 206, 614....50%
C. E. Jennings & Co....50&5%
Mayhew's Ratchet....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces....25&10%
P., S. & W. Co., Peck's Pat....60&10%

Brackets—
Wrought Steel..75&10@75&10&10%
Bradley Metal Clasp...80&10@80&10&5%
Griffin's Pressed Steel....75@75&10%
Griffin's Folding Brackets....70&10%
Taplin Victor Handy Egg Beater Bracket....℔ doz. $1.50

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co....75&20%
Wire Goods Co....75%

Buckets, Galvanized—
M'fr's list, price per gross.

Quart..	10	12	14	
Water, Reg...	*26.85*	*29.50*	*33.50*	*10&7½&5&5%*
Water, Hvy...	*45.35*	*48.00*	*52.00*	
Fire, Rd. Btm.	*32.00*	*34.65*	*38.65*	
Well....	*37.35*	*41.35*	*45.35*	

Bull Rings—See *Rings, Bull.*

Butts—Brass—
Wrought, High List, Oct. 26,'06.55%
Cast Brass, Tiebout's....40%

Cast Iron—
Fast Joint, Broad....40&10@50%
Fast Joint, Narrow...40&10@50%
Loose Joint....70&10@75%
Loose Pin....70&10@75%
Mayer's Hinges....70@70&5
Parliament Butts....70@70&5

Wrought Steel—Bright.
Light Narrow, Light Reversible....70&5%
Reversible and Broad..70&5%
Loose Joint, Narrow, Light Inside Blind, &c....70%
Back Flaps, Table Chest..65% Japanned.
Light Narrow, Loose Pin, 40&5%
Light Narrow, Ball Tip..60%
Broad....40&5%
Steeple Tipped....70%
Ball Tipped....70%

Extra, 10—

Cages, Bird—
Hendryx Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900 ..... 30%
Hendryx Bronze: Series 700, 800.... 30%
Hendryx Enameled..... 35%

Calipers—See *Compasses.*

Calks, Toe and Heel—
Blunt, 1 prong, per 100 lb., $3.50@$3.85
Sharp, 1 prong, per 100 lb., $4.00@$4.35
Burke's, 1 pg. Blunt Toe, 3¾¢; 2 pg. Blunt Toe, 4¼¢; 1 pg. Sharp Toe, 4¼¢; 2 pg. Sharp, 4¾¢; Blunt Heel, 4¼¢; Sharp Heel..... 4¾¢
Lautier, Blunt, 4@4¼¢; Sharp, 4½@4¾¢
Perkins', Blunt, ℔ lb, 3.65¢; Sharp, 4.15¢

Can Openers—
See *Openers, Can.*

Caps, Percussion—
Eley's E. B...... 52@55¢
G. D...... *per M* 34@35¢
F. L...... *per M* 40@42¢
G. E...... *per M* 48@50¢
Musket..... *per M* 62@63¢

Primers—
Berdan Primers, $2 per M.. 20%
Primer Shells and Bullets.. 15&10%
All other primers per M. *$1.52@1.60*

Carpet Stretchers—
See *Stretchers, Carpet.*

Cartridges—
Blank Cartridges:
32 C. F., $5.50..... 10&5%
38 C. F., $7.00..... 10&5%
22 cal. Rim, $1.50..... 10&5%
32 cal. Rim, $2.75..... 10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball..... *$1.40*
Central Fire..... 25%
Target and Sporting Rifle. 15&5%
Primed Shells and Bullets. 15&10%
Rim Fire, Sporting..... 50%
Rim Fire, Military..... 15&5%

Casters—
Bed..... 65&10@70%
Plate..... 60@60&5%
Philadelphia..... 70&10@75%
Acme, Ball Bearing..... 35%
Gem (Roller Bearing)..... 70&10&10&5%
Steel Gem (Roller Bearing)..... 70%
Standard Ball Bearing..... 45%
Yale (Double Wheel) low list... 40&10%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Proof Coil—
American Coil, Straight Link:

3-16	¼	5-16	⅜	7-16	½	⅝
$8.15	5.55	4.60	3.95	3.75	3.65	3.55

¾-⅞-1 1⅛ to 1¼ inch.
$3.45 3.55
In cask lots, deduct 25¢.
German Coil..... 60@60&5%
German Pattern Coil:
6-0 to 1..... 70&5@70&10%
2 and 3. 60&10&10@60&10&10&5%
4, 5 and 6..... 50&10@50&10&5%

Halter—
Halter Chains..... 60&5@60&10%
German Pattern Halter Chains list July 24, '97.... 60&10&5@70%
Covert Mfg. Co.:
Halter ..... 35&5%

Cow Ties—
See *Halters and Ties.*

Trace, Wagon, &c.-
Traces, Western Standard: 100 pr.
6½—6-3, Straight, with ring. *$28.00*
6½—6-2, Straight, with ring. *$29.00*
6½—8-2, Straight, with ring. *$32.00*
6½—10-2, Str'ght, with ring. *$37.00*
NOTE.—Add 2c per pair for Hooks Twist Traces: add per pair for Nos. 2 and 3, 2c: No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c... 60&10@60&10&5%

Miscellaneous—
Jack Chain, list July 10, '93:
Iron..... 60&10&7½%
Brass..... 65%
Safety and Plumbers' Chain. 75%
Gal. Pump Chain.... *lb.*, 4½@5%
Bridgeport Chain Co.:
Triumph Halter and Coil. 35&2½@40%
Triumph Dog..... 50&10@60%
Brown Halter and Coil.... 45@50&5%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion 40%
Oneida Community:
American Halter, Dog and Kennel Chains ..... 35&2½@40%
Niagara Dog Leads and Kennel Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain..... 70%
Universal Dbl.-Jointed Chain.... 70%

Chain and Ribbon, Sash—
Oneida Community:
Steel Chain..... 60%
Pullman:
Bronze Chain, 60%; Steel Chain, Coppered ..... 60&10%
Sash Chain Attachments, per set.. 8¢
Aluminoy Sash Ribbon, per 100 ft. ..... $2.00@$5.00
Sash Ribbon Attachments, per set.. 8¢

Chalk—
Carpenters' Blue..... *gro.*, 50¢
Carpenters' Red..... *gro.*, 50¢
Carpenters' White..... *gro.*, 40¢

Checks, Door—
Bardsley's 45%
Pullman, per gro..... $54.00
Russwin 33⅓%

Chests, Tool—
American Tool Chest Co.:
Boys' Chests, with Tools..... 55%
Youths' Chests, with Tools..... 40%
Gentlemen's Chests, with Tools.. 30%
Farmers', Carpenters, etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty..... 45%
Tool Cabinets..... 45%
C. E. Jennings & Co.'s Machinists' Tool Chests..... 7½%

Chisels—Socket Framing and Firmer
Standard List..... 80&10@—%
Buck Bros..... 30%
C. E. Jennings & Co.:
Socket Firmer No. 10..... 25&7½%
Socket Framing No. 15..... 25&7½%
Swan's ..... 66⅔@70
L. & I. J. White & Co..... 30@30&5%

Tanged—
Tanged Firmers..... 30&5@35%
Buck Bros..... 30%
C. E. Jennings & Co. Nos. 191, 181.. 25%
L. & I. J. White Co..... 25&5%

Cold—

	lb.
Cold Chisels, good quality	13@15¢
Cold Chisels, fair quality	11@12¢
Cold Chisels, ordinary	9@10¢

Chucks—
Almond Drill Chucks..... 35%
Almond Turret Six-Tool Chuck..... 40%
Beach Pat, each $8.00..... 35&5%
Empire 25%
Blacksmiths' 25%
Jacobs' Drill Chucks..... 35%
Pratt's Positive Drive..... 25%
Skinner Lathe Chucks:
Independent 35%
Universal, Reversible Jaws..... 35%
Universal, Com. Style Jaws..... 40%
Combination, Reversible Jaws.... 35%
Combination, Com. Style Jaws... 40%
Round Body or Box Body, 2 Chuck Jaws 25%
Geared Scroll Chucks..... 25%
Drill Chucks:
New Model, 25%; Geared Pattern, 25%; Skinner Patent, ...25%
Positive Drive..... 40%
Planer Chucks..... 20%
Standard 45%
Drill Press Vises..... 30%
Face Plate Jaws..... 35%
Standard Tool Co.
Improved Drill Chuck..... 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21..... 35%
Scroll Combinations, Nos. 83 and 84 ..... 30%
Geared Scroll, Nos. 33, 34 and 35.. 25%
Independent Iron, Nos. 18 and 318. 35%
Independent Steel, No. 64..... 25%
Union Drill, Nos. 000, 00, 100, 101, 102, 103, 104..... 35%
Union Czar Drill..... 25%
Universal, 11, 12, 16, 17, 13, 14, 15.. 40%
Universal No. 42..... 35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50..... 35%
Steel Face Plate Jaws, Nos. 70 and 72 ..... 30%
Westcott Patent Chucks:
Lathe Chucks..... 50%
Little Giant Auxiliary Drill..... 50%
Little Giant Double Grip Drill... 50%
Little Giant Drill, Improved..... 50%
Oneida Drill..... 50%
Scroll Combination Lathe..... 50%
Whitaker Mfg. Co.:
National Drill..... 25%

Clamps—
Adjustable Hammers..... 20@20&5%
Carriage Makers', Star, P., S. & W. Co. 50%
Besly, Parallel..... 33⅓&10%
Myers' Hay Rack..... 50%
Lineman's Swedish Neverturn..... 65%
Wood Workers' Hammers..... 40&10%
Saw Clamps, see Vises, Saw Filers'.

Cleaners, Drain,
Iwan's Champion, Adjustable..... 50%
Iwan's Champion, Stationary..... 40%

Sidewalk—
Star Socket, All Steel.. ℔ doz. $1.05 net
Star Shank, All Steel.. ℔ doz. $3.24 net
W. & C. Shank, All Steel, ℔ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—
Foster Bros..... 30%
Fayette R. Plumb..... 30%
L. & I. J. White Co..... 30%

Clippers, Horse and Sheep—
Chicago Flexible Shaft Co.:
1902 Chicago Horse, each..$10.75
20th Century Horse, each...$5.00
Lightning Belt Horse, each.$15.00
Chicago Belt Horse, each..$20.00
Stewart's Enclosed Gear Roll Bearing Horse, each.....$6.75
Stewart's New Model Sheep Shearing Machine, each.$12.75
Stewart Enclosed Gear Shearing Machine, No. 8, each..$9.75
} 20%

Clips, Axle—
Regular Styles, list July 1, '05, 80&80&10%

Cloth and Netting, wire—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c..... 75%
Compression Bibbs..... 70%

Coffee Mills—
See *Mills, Coffee.*

Collars, Dog—
Nickel Chain, Walter B. Stevens & Son's list..... 40%
Leather, Walter B. Stevens & Son's list 40%

Compasses, Dividers, &c.
Ordinary Goods..... 70&10@75%

Conductor Pipe,—
L. C. L. to Dealers:

	Gal. Steel.	*Charcoal.*
Northeastern	70&10%	50&10&7½%
Eastern	75%	50&10&7½%
Pittsburgh	75&10&5%	60%
Central	75&10%	60%
Northwestern	75&7½%	60%
Western	70&12½%	50&12½%
Tennessee	70&10%	50&12½%
Southern	70%	50&12½%
Southwestern	70%	50&5%

Terms, 60 days: 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—
L. & G. Mfg. Co.:

Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2 25	$2.90	$3,90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled..... 10%
Agate Lined..... 10%

Coppers' Tools—
See *Tools, Coopers'.*

Coppers, Soldering—
Soldering Coppers, 3 lb. to pair and heavier, 20¢; lighter than 3 lb. to pair..... 22¢

Cord— Sash—
Braided, Drab..... *lb.* 35¢
Braided, White, Com., Nos. 8 to 12, 20¢; No. 7, 20½¢; No. 6, 21½¢. In lots of 12 doz. or over, 1 cent less per pound.
Cable Laid Italian, lb., No. 18. 37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India..... *lb.*, 11@11½¢
Cotton Sash Cord, Tw'ted. 18@20¢
Patent Russia..... *lb*.... 20¢
Cable Laid Russia..... *lb*... 21¢
India Hemp, Br'd'd..... *lb*... 21¢
India Hemp, Twisted.. *lb*. 13@14¢
Patent India, Twisted.. *lb*... 17¢
Pearl Braided, cotton, No. 6, ℔ lb, 20½¢; No. 7, 19½¢; Nos. 8 to 12, 19½¢, in 12 doz. to 100 doz. lots.
Eddystone, Braided, Nos. 8 to 12, 26¢; 7, 26½; 6, 27½¢.
Harmony Cable Laid Italian, Nos. 7 to10..... ℔ lb 23¢
Pullman:
Wire Sash Cord..... 10%
Sash Cord Attachments, per 100..$2.00
Samson, Nos. 8 to 12:
Braided, ℔ lb., Drab Cotton, 55¢; Italian Hemp, 40¢@50¢; Linen, 65¢; White Cotton, 50¢; Spot Cord..... 50¢
Massachusetts, White... ℔ lb 40¢
Massachusetts, Drab... ℔ lb 45¢
Phoenix, White, Nos 8 to 12.... 27¢
} 15%
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen....57½¢
See also Chain and Ribbon.

Wire, Picture—
Full Length..... 90@—%
Short Length..... 90&20@—%
Hendryx Standard Wire Picture Cord, old list, 85&10%
Turner & Stanton Co. Wire Picture Cord 90%

Cradles—
Grain..... 50%

Crayons—
White Round Crayons, Cases, 100 gro., $8.00, $8.50, $9.00 and $10.00 according to grade.
Zelnicker's Lumber: ℔ gro.
White and Purple, Indelible....$7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black.....$4.50
Giant Lumber, 5¼ in. x 15-16 in. round, all colors, $12.00; Indelibles, $14.00; Blacks.....$10.00
Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, $2.50; 5 in. x ¼ in. Square, $1.75; 5 x ½ x 3-16, $2.50; 5 x 1¼ x 3-16..... $3.00
Suremark, Black, $2.25; Blue, Red and Yellow..... $2.50

Crooks, Shepperds'—
Fort Madison, per doz., Heavy, $5.50; Light $5.00

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden..... 50%

Cutlery, Table—
International Silver Company:
No. 12 M'd'm Knives, 1847. ℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor..... ℔ doz. $3.00
Wm. Rogers & Son..... ℔ doz. $2.50

Cutters— Glass—
H. H. Mayhew Co..... 40%
Red Devil..... 60%
B. Mfg. Co..... 40%
Woodward 50%

Meat and Food—
American 30%

Nos.	401	402	403	404	405	406	407
Each	$5	$7	$10	$12	$25	$50	$60

Enterprise:

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

25@25&7½%
No. 202, $1.50..... 40&7½%
P., S. & W. Co.:
Ideal ..... 40@40&5%
Hales ..... 60&5%
Little Giant..... ℔ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

New Triumph No. 605, ℔ doz. $24.00. 40%
Russwin Food, No. 1, $24.00; No. 2, $27.00; 3, $42.00..... 45&10&10%

	$15.00	$18.00

Enterprise Beef Shavers..... 25@30%

Slaw and Kraut—
Henry Disston & Sons:
Slaw and Kraut Cutters..... 35%
Corn Graters..... 30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife.... ℔ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ℔ doz. $4.00

Tobacco—
All Iron, Cheap... *doz, $4.25@4.50*
Enterprise ..... 25@30%
National, ℔ doz., No. 1, $21; No. 2, $18 ..... 40%

Diggers, Post Hole, &c—
Disston's:
Rapid, ℔ doz., $24.00..... 25%
Samson, ℔ doz., $34.00..... 25%
Iwan's Pat. Post Hole and Well Auger 40%
Vaughan Pattern Post Hole Augers, ℔ doz., $7.00
Perfection Post Hole Diggers, ℔ doz. $8.50
Split Handle Post Hole Diggers, ℔ doz., $7.50
Hercules Pattern, ℔ doz..... $9.50
Kehler's, ℔ doz., Universal, $14.00; Little Giant, $12.00: Hercules, $10.00; Invincible, $9.00; Rival, $8.50; Pioneer..... $7.50
Never-Break Crucible Steel Post Hole Diggers 60%

Dividers—See *Compasses.*

Drawing Knives—
See *Knives, Drawing.*

Dressers Emery Wheel—
Sterling Emery Wheel Dressers..... 35%
Sterling Wheel Dresser Cutters..... 35%

Drills and Drill Stocks—
Blacksmith's Common Drilling Machines..... *$1.50@1.75*
Breast, Millers Falls..... 15&10%
Breast, P., S. & W..... 33⅓%
C. & C. Ratchet..... 25%
Reversible Ratchet Die Stocks.... 25%
Goodell Automatic Drills. 50&10@60&10%
Millers Falls Automatic Drills, Graves', per doz., Nos. 1, $4.86; 2, $8.16.
Millers Falls Automatic Drills, 33⅓&10%
Ratchet, Curtis & Curtis..... 25%
Ratchet, Parker's..... 40%
Ratchet, Weston's..... 40%
Ratchet, Weston's, Style H Improved ..... 40@40&5%
Ratchet, No. 012..... 40@40&5%
Ratchet, Celebrated..... 40@40&5%
Ratchet, Whitney's, P., S. & W.. 40&10@50%
Whitney's Adjustable, No. 10, $12.00. 33⅓%

Twist Drills—
Bit Stock..... 70@70&5%
Taper and Straight Shank, 60&10@70%

Drivers, Screw—
Screw D'ver Bits, per doz. 45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9 ..... 50%
Buck Bros.' Screw Driver Bits..... 30%
Champion 50%
Disston's 70%
Fray's Hol. H'dle Sets, No. 3, $12.. 50%
Ford's Brace Screw Drivers.... 40&10%
Gay's Double Action Ratchet..... 35%
Goodell's Auto..... 65@65&10%
Mayhew's Black Handle..... 40%
Mayhew's Monarch..... 40%
Millers Falls, ℔ doz., Nos. 11, $9.95; 12, $13.73; 20, $8.17; 21, $8.46; 41, $13.43; 42, $17.21.
Smith & Hemenway Co., Neverturn, 66⅔%; Elmora, 60%; Star, 30&10%
Swan's:
Nos. 7565 to 7568, 60%; No. 7540, 40&10%

Eave Trough, Galvanized—Charcoal.

Territory...	*Gal. Steel.*	*Iron.*
Northeastern	75&10&5%	60&20%
Eastern	80&21½%	60&20%
Pittsburgh	80&20%	65&10%
Central	80&10&10&2½%	65&10%
Northwestern	80&10&10%	65&10%
Western	80&10%	60&10&5%
Tennessee	80&5%	60&10&5%
Southern	80%	60&10&5%
Southwestern	75&10&2½%	60&5%

Terms.—2% for cash. Factory shipments generally delivered.
Note.—Lower prices are made in some sections.
See also Conductor Pipe and Elbows.

Elbows and Shoes—
Factory shipments, all territories:
Galv. Steel and Galv. C. I. Standard Gauge..... 85@85&10%
No. 26..... 50%
No. 24..... 25%
No. 22..... 10%

Elbows, Stove Pipe—
Edwards, Standard Blue....40&10&10%
Edwards, Royal Blue.....40&10&10%
Reeves, Dover, Flat Crimp..40&10&5%

Emery, Turkish—

	¼ to 4½:	5¼ to 220:	Flour.
Kegs..... *lb.*	5 ¢	5½¢	3½¢
½ Kegs..... *lb.*	5¼¢	5¾¢	3¾¢
¼ Kegs..... *lb.*	5½¢	6 ¢	4 ¢
10-lb. cans, 10 in case....	6½¢	7 ¢	6 ¢
10-lb. cans, less than 10.....	10 ¢	10 ¢	8 ¢
Less quantity..	10 ¢	10 ¢	8 ¢

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—
Ford's Auger Bit Extensions....40&5%

Extractors, Lemon Juice—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's Jap'd and Galv., 50 & 5%; Bronze and Plated.....50%
Walling's 50%
Upson's Patent.....40%

Cord and Weight—
Ives, ₱ gro., $1.08.....10%
Titan, ₱ gro., $0.66.....10%

Corrugated—
Acme Corrugated Fasteners.....70%

Faucets—
Cork Lined.....50&10@60%
Metallic Key, Leather Lined, 60&10@70%
Red Cedar.....40&5@40&10&5%
Petroleum.....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star.....60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined..50%
John Sommer's Reliable Cork Lined.. 50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
Self Measuring:
Enterprise, Self Measuring and Pump, ₱ doz., $36.00.....40&10%
Lane's, ₱ doz., $36.00.....40&10%
National Measuring, ₱ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.....75&10@80%
Lower Grade....75&10&10@80&10%
Gold Medal.....70%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33⅓@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103; Special, No. 104.....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.60*	*3.85*	*4.15*	*4.65*

Peck, Stow & Wilcox Co.:

In.	15	17	19	21	24
	$4.00	4.40	4.75	5.50	6.50

Reading Hardware Co.....30%
.....60%

Fodder Squeezers—
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....66⅔%
Victor, Header.....65%
Champion, Hay.....66⅔%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley....40%
Plated.—See Spoons.

Frames— Wood Saw—
White, S'g't Bar, per doz.75@80¢
Red, S'g't Bar, per doz.$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp.....$2.75
Cotton.....3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
10&2½%

Gates, Molasses and Oil—
Stebbins' Pattern.....80@80&5%

Gauges—
Marking, Mortise, &c..50@50&10%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Disston's Marking, Mortise, &c..67½%
Wire, Brown & Sharpe's.....33⅓%
Wire, Morse's.....25%
Wire, P. S. & W. Co.....33⅓%

Gimlets — Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....65@65&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush, 25&10@50%
Elwell's 40%

Grease, Axle—
Common Grade...gro.$6.00@$6.50
Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, ₱ doz., 1 lb, $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grinders—
Pike Mfg. Co.:
Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power).33⅓%
Mower Knife and Tool, $5.00..40&10%
Royal Mfg. Co.:
Alundum Grinding Machines, each, Nos. 01, $1.75; 1A, $2.50; 10, $5.00 .....30%
Alundum Sickle Grinders, each, Nos. 20, $5.00; 20A, $6.00; 20A Combined, $6.50.....30%
Alundum Disc Grinders, each, $2.50 .....30%

Grindstones—
Pike Mfg. Co.:
Improved Family Grindstones, ₱ inch, ₱ doz., $2.00.....33⅓%
Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted.....40%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....65@65&10%
Bridgeport Chain Co.:
Triumph Coil and Halters.35&2½@40%
Brown Coil and Halters...45@50&5%
Brown Cow Ties.....50&5@50&10&5%
Brown Tie Outs.....70&10@75&5%
Covert Mfg. Co.:
Web .....30&2%
Jute Rope.....35%
Sisal Rope.....20%
Cotton Rope.....45%
Hemp Rope.....45%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters...45@50&5%
Niagara Cow Ties.....45&5@50&10&5%

Hammers—
Handled Hammers—
Heller's Machinists'....55&10@55&10&5%
Heller's Farriers.....40&5@40&10&5%
Peck, Stow & Wilcox Co.:
Crucible Steel.....40&10@50%
Farriers' .....40&10@50%
Riveting .....40&10@50%
Machinists' .....66⅔@5%
Blacksmiths' 50%
Fayatte R. Plumb:
A. E. Nail.....40&2½@40&12½%
Eng. and B. S. Hand.50&10&5@60&5%
Machinists' Hammers.....60&10&5%
Rivet and Tinners'.40&7½@40&12½&5%
Victor Magnetic Tack, ₱ gro....$7.75

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10&10%
Over 5 lb., per lb., 30¢.....
Over 5 lb., per lb., 30¢.80&10&10%

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....40%
Fork, Shovel, Spade, &c.:
Long Handles.....40%
D Handles.....40%

Cross-Cut Saw Handles—
Atkins' 40%
Champion 50%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro.$3.00@$3.50
Brad Awl.....gro.$1.65@$1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@ $2.65; Hickory.....$2.15@2.40
Socket Firming, Apple, $1.75@ $1.95; Hickory.....1.60@1.75
Socket Framing, Hickory, $1.60@$1.75
File, assorted.....gro.$1.30@$1.40
Hammer, Hatchet, &c., 60&10@60&10&5%
Hand Saw, Varnished, doz., 80¢ 85¢; Not Varnished.....65@75¢
Plane Handles:
Jack, doz., 30¢; Fore, doz...45¢
Chapin-Stephens Co.:
Carving Tool.....30@30&10%
Chisel .....60@60&10%
File and Awl.....60@60&10%
Saw and Plane.....30@30&10%
Screw Driver.....30@30&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ₱ gro. $0.85@$1.50
J. L. Osgood:
Indestructible File and Tool, ₱ gro., No. 1, $8.00; No. 2, $8.50; No. 3, $9.00; No. 4, $9.50; No. 5, $10.00.....gro. lots 10%
W. A. Zelnicker Supply Co.:
Hammer, ₱ doz., 12 in., $2.00; 14 in., $2.00; 16 in., $2.30; 18 12., $2.50; 20 in., $2.70; 22 in., $3.00; 24 in., $3.30; 26 in., $3.50; 30 in., $3.80.
Sledge, ₱ doz., oval, 30 in., $3.80; octagon, 30 in., $3.80; oval, 36 in., $4.00; octagon, 36 in., $4.00.
Axe, ₱ doz., 28 to 34 in., $5.60; 36 in., $5.80.
Adze, ₱ doz., 36 in., $5.80; 36 in., $7.80.
Pick, ₱ doz., R. R., 36 in., $8.00; coal, 34 in., $5.80.
Hatchet, ₱ doz., 12 to 14 in., $2.00.
Extra 5@10% often given.

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00..60&10%
Roller Bearing, No. 11, $15.00, 60&10%
Roller Bearing, Ex. Hy., No. 22, $18.00.....60&10%
Bull Dog, $24.00.....70%
Lane Bros. Co.:
Parlor, Ball Bearing, $4.00; Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion per set of 4 Hangers, complete with track.....$2.25
Barn Door, Standard.....60&10%
Hinged .....net $6.08
Covered .....60&5%
Special .....70&5%
Trolley Hangers and track..50%
Lawrence Bros.:
Advance .....55&10%
Cleveland .....70&7½%
Clipper, No. 75.....60%
Crown .....55&10%
Cyclone, No. 40.....net $6.50
Tandem, No. 50.....net $7.50
New York.....55&10%
McKinney Mfg. Co.:
Roller Bearing, Nos. 1 and 2..70%
Anti-Friction 60%
Hinged Hangers, King Charm.60%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track, No. 3..$2.25
Roller B'r'g St'l Track No. 12.$2.20
Roller B'r'g St'l Track No. 13.$2.50
Roller B'r'g, Nos. 39, 41, 43, 70&7½%
Hero, Adj, Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&5%
Trolley B, D, No. 17, $1.25; F, D, No. 120, $2.25; No. 121, $2.45; No. 150.....$2.50
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 41..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&5%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.25
Trolley B, D, No. 20.....50&10%
Trolley B, D, No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&7½%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing, ₱ doz., 4 in., $12.00; 5 in., $14.00..40&10%
Myers' Stayon Hangers.....60%

Hangers— Garment—
Pullman Trouser, ₱ gro., No. 1 $9.00; No. 4, $24.00; No. 5, $16.50; No. 8, Black Enamel, $7.50; No. 10, $21.00; No. 12, $8.00; No. 15, Rods, $9.00; No. 18, Loops.....$10.00
Victor Folding.....₱ gro. $9.60

Gate—
Myers' Patent Gate Hangers, ₱ doz, net 50%

Joist and Timber—
Lane Bros. Co.....35%

Hasps—
Griffin's Security Hasp.....50&10%
McKinney's Perfect Hasp, ₱ doz..60%

Hatchets—
Regular list, first qual.40&12½@—
Second quality.....50&10&5@—

Heaters, Carriage—
Clark, No. 5, $1.25; No. 5B, $1.50; No. 3, $1.75; No. 3D, $2.00; No. 7D, $2.25; No. 3E, $2.50; No. 1, $3.00.....25%
Clark Coal, ₱ doz., $0.75.....20%

Hinges—
Blind and Shutter Hinges
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Acme, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, No. 1647½, ₱ doz. sets, without screws, $0.95; with screws, $1.25.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&5%
Acme, Lull & Porter.....75%
Queen City Reversible.....75%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&5%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&5%
Clark's O. P., No. 1.....75&10%
Clark's O. P., Nos. 3 and 5....75&5%
Tip Pat'n, No. 1.....75&10%
Clark's No. 3.....75&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....70&10&5%
Shepard's Double Locking.....75%
Champion Gravity Locking.....75&5%
Pioneer .....75&10%
Empire 65%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L't'chs.	*$2.00*	*2.70*	*5.00*
Hinges only.....	*1.25*	*1.90*	*3.50*
Latches only.....	*.70*	*.75*	*.35*

New England:
With Latch.....doz..@$2.00
Without Latch.....doz..@$1.60
Reversible Self-Closing:
With Latch.....doz..@$1.75
Without Latch...doz. ...@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz..$1.15
Wrightsville Hardware Co.:
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3.....70%

Miscellaneous—
Griffin Mfg. Co., Fleur de Lis Surface Hinges, ₱ doz. prs.....$1.00

Pivot Hinges—
Bommer Bros, Pivot, Ball Bearing 40%
Lawson Mfg. Co. Matchless.....30%

Spring Hinges—
Holdback, Cast Iron...$6.75@$7.00
Non-Holdback, C'st Iron$6.50@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....40%
Bardsley's Patent Checking.33⅓%
Bommer Bros.:
Spring Butt Hinges.....40%
Surface Floor, Ball Bearing 40%
Mortise Floor, Ball Bearing.40%
Lavatory Hinges.....40%
Non-Holdback Screen Door, Nos. 2000 and 900.....40%
Holdback Screen Door, No. 999.....₱ gro. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor.50%
Garden City Engine House...25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ₱ gr., No. 14, $9.00; No. 18.....$25.00
Columbia, Adj., No. 7, ₱ gr.$12.00
Gem, new list.....30%
Clover Leaf and Acorn, per gro. $12.00
Oxford, new list.....30%
Floor Spring Hinges.....65&10%
Columbian Steel.....65&10%
Lawson Mfg. Co.:
Matchless Spring Hinges.....30%
Matchless Jamb Hinges.....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....₱ gr. $9.00
Chief Ball Bearings Floor Hinge 50%
Ball Bearing Door.....25%
No. 777, Sheet Steel Holdb'k, ₱ gr. pr.....$9.00
Standard Mfg. Co.:
Champion Double Acting Door Hinge .....25&10&10%
Standard Double Acting Floor Hinge .....25&10&10%
Superior Spring Hinge Co.:
Superior Floor Hinges.....33⅓%
Spring Hinges.....33⅓%
Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list February 10, 1908:
Light Strap Hinges..50&10%
Heavy Strap Hinges..60&5%
Light T Hinges.....50%
Heavy T Hinges.....40%
Extra Hvy. T Hinges.50&10%
Hinge Hasps.....33⅓%
Cor. Heavy Strap....60&5%
Cor. Ex. Heavy T...50&10%
Extra 10&7½%

Screw Hook and Strap. { *6 to 12 in..lb. 3½¢* / *14 to 20 in..lb. 3½¢* / *22 to 36 in..lb. 3 ¢* }

Screw Hook and Eye:
½ inch.....lb. 6¼¢
⅝-inch.....lb. 7½¢
½-inch.....lb. 8½¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—
M'f'gr's list, price per gross:

Inch	*15*	*16*	*17*	*18*
Galv. Open	*$35*	*$39*	*$42*	*$46*
Jap. Open	*26*	*28*	*31*	*35*
Galv. Funnel	*43*	*48*	*52*	*56*
Jap. Funnel	*33*	*36*	*39*	*43*

10&7½&5%

Masons' Etc.
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $1.05
Steel Mortar, No. 158.....each $1.35

Hoes— Eye—
Scovil and Oval Pattern, 60&10@60&10&10%
Grub, list Feb. 23, 1899, 70&10@70&10&10%
D. & H. Scovil.....27½%
Am. Fork & Hoe Co. (Scovil Pattern.) 60%

Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding, No. 1, $2.00; No. 2, $2.50
Star Double Bit.....$2.50
Ft. Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ₰ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....₰ doz. 40&5%
Junior Size.....₰ doz. $4.00
Ft. Madison Sprouting Hoe, ₰ doz., 60&10%
Ft. Madison Dixie Tobacco Hoe.....75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.40
B. B., 6½ in.....$3.50
Acme Wedding.....₰ doz., net, $4.35
W. & C. L'ning Shuffle Hoe, ₰ doz.$5.25

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ₰ doz. $24.00.....45&10%

Door—

Bardsley's, Iron, 40%; Brass and Bronze.....25%
Empire.....50%
Pullman.....25%
Richards Mfg. Co.: No. 117, Ever-ready, 40%; Nos. 118, 119, Sure Grip.....50%
Superior.....33⅓%

File and Tool—

Nicholson File Holders and File Handles.....33⅓@40%

Fruit Jar—

Triumph Fruit Jar Holder, ₰ gross, $18.00; ₰ doz.....$2.00

Trace and Rein—

Fernald Double Trace Holder, ₰ doz. pairs.....$1.25
Dash Rein Holder, ₰ doz.....$1.25

Hones—Razor—

Pike Mfg. Co., Belgian and Swaty, 50%; German.....33⅓%

Hooks—Cast Iron—

Bird Cage, Reading.....40%
Clothes Line, Reading List.....40%
Coat and Hat, Reading.....45&20%
Coat and Hat, Wrightsville.....60&5%
Harness, Reading List.....40%

Wire—

Belt, Nos. 1 to 15....75¢10@80%
Wire U. & H. Hooks..80@80¢10%
Bradley Metal Clasp Wire, Coat and Hat, 75&10@80%; Ceiling..75&10@80%
Columbian Hdw. Co., Gem.....75&10%
Parker Wire Goods Co., King..75&10%
Wire Goods Co.:
Acme, 60&10%; Chief, 70&10%; Crown, 75%; Czar, 65&10%; V Brace, 75%; Czar Harness, 50%; Ceiling, 75%.

Wrought Iron—

Box, 6 in., per doz., $0.90; 8 in., $1.15.
Cotton.....doz. $1.25@$1.50
Wrought Staples, Hooks, &c.—See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz., $6.20; Medium, $6.75; Heavy, $7.65
Grass, best, all sizes, per doz., $2.75@$3.00
Grass, common grades, all sizes, per doz.....$1.25@$1.50
Whipletree.....lb. 5½@6¢
Hooks and Eyes:
Brass.....60@60&10%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....40%
Ft. Madison Cut-Easy Corn Hooks, ₰ doz. $3.25 net
Turner & Stanton Co. Cup and Shoulder.....85&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....ft. 6@6¼¢
3-ply Guaranteed.....ft. 8½@9¢
4-ply Guaranteed....ft. 9½@12¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8@ 9c
Fair Quality.....ft. 10@11¢

Irons— Sad—

From ¼ to 10.....lb. 2½@2¾¢
B. B. Sad Irons.....lb. 3¼@3½¢
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Caps	86	93	96	93
Tin'd Caps	91	88	1.01	98

New England Pressing..lb. 3¾@4¢

Bar and Corner—

Richards Mfg. Co., Bar, 60&10%; Corner.....60%

Pinking—

Pinking Irons.....doz. 60@65¢

Irons, Soldering

See *Coppers.*

Jacks, Wagons—

Covert Mfg. Co.:
Auto Screw.....30&2%; Steel, 45%
Lockport.....50%
Lane's Steel.....30&5%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Ladder—

Richards Mfg. Co., Ladder Jacks..50%

Jointers—

Pike Mfg. Co., Saw Jointers, $7.00..40%

Kettles—

Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co....60%

Corn—

Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60%
Withington Acme, ₰ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—

Standard List.....80&10@—%
C. E. Jennings & Co., Nos. 45, 46, 25&7½%
Jennings & Griffin, Nos. 41, 42, 66⅔&7½%
Swan's.....66⅔@70%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—

Serrated Edge, per doz. $5.00@5.50
Iwan's Sickle Edge.....₰ doz. $9.50
Iwan's Serrated.....₰ doz. $10.00

Miscellaneous—

Farriers'.....doz. $2.60@3.55
Westenholm's.....₰ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch or Maple, Rubber Tip.....gro. $1.25@1.40
Carriage, Jap., Drive, all sizes, gro. 35@40¢
Door, Mineral.....doz. 65@70¢
Door, Por. Jap'd.....doz. 70@75¢
Door, Por. Nickel..doz. $2.05@2.15
Barduley's Wood Door, Shutters, &c. 15%

Lacing, Leather—

See *Belting, Leather*

Ladders, Store, &c.—

Lane's Store.....
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—

L. & G. Mfg. Co., Melting and Plumbers'.....25%
P., S. & W.....40&10%
Reading.....60%

Lanterns—Tubular—

Regular, No. 0.....doz. $4.35@4.50
Side Lift, No. 0.....doz. $4.60@4.75
Hinge Globe, No. 0. doz. $4.60@4.75
Other Styles.....40@40&10%

Bull's Eye Police—

3-inch.....$3.75@4.00

Latches— Thumb—

Roggin's Latches, Jap'd, with Screws.....doz. 35@40¢

Door—

Cronk & Carrier Mfg. Co., No. 101, ₰ doz. $2.00
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—

Small.....doz. 50¢; large, 60¢
Covert Mfg. Co.:
Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20%.

Leathers, Pump—

See *Pumps—*

Lifters, Transom—

R. & E.....10%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet	*$2.30*	*1.95*	*1.75*
75 feet	*$1.95*	*1.65*	*1.50*

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Solid Braided Masons'.....30%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....₰ gr. 20%
Masons' Lines, Shade Cord, &c.: White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%
Turner & Stanton Co.:
Solid Braided Chalk, Masons' and Awning Lines.....40%
Clothes Lines, White Cotton....20%
Shade Cord, Cotton or Linen....20%

Locks— Cabinet—

Cabinet Locks....33⅓@33⅓@5%

Door Locks, Latches, &c —

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....10%

Padlocks—

R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—

Ives' Patent:
Crescent.....10%
Automatic Gravity Metal Sash, ₰ gro., $149.58.....10%
Window Ventilating.....10%
Pullman Patent Ventilating Lock..25%
Reading Sash Locks.....40%
Taylor Mfg. Co., Perfect Ventilating, ₰ doz.....$0.75@$1.00

Machines—Boring—

Com. Upr't, without Augers, $2.00@2.25
Com. Angl'r, without Augers, $2.25@2.50
Ford Auger Bit Co.....$22.00
Jennings', Nos. 1 and 4.....25&7½%
Millers' Falls.....5.75
Snell's, Upright, $2.65; Angular, $2.90
Swan's Improved.....40&10%

Corking—

Reisinger Invincible Hand Power....₰ doz. $48.00

Fence—

Williams' Fence Machines....each. $5.50

Hoisting—

Moore's Anti-Friction Chain Hoist.30%
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Cyclone High Speed Chain Hoist.....25%

Ice Cutting—

Chandler's.....12½%

Washing

Boss Washing Machine Co.: Per doz.
Boss No. 1.....$57.00
Boss Rotary.....$57.00
Champion Rotary Banner No. 1.$57.00
Standard Champion No. 1.....$50.00
Standard Perfection.....$27.00
Cincinnati Square Western.....$33.00
Uneeda American, Round.....$33.60

Mallets—

Hickory.....45&5@50%
Lignumvitæ.....45&5@50%
Tinners' Hickory and Apple-wood.....doz. 45&5@50%

Mangers, Stable—

Swett Iron Works.....50%

Mats, Door—

Acme Flexible Steel.....50%
Elastic Steel (W. G. Co.), new list.50%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co.:
Coffee.....20@25%
Shell and Corn.....25&10%
National list Jan. 1, 1902.....30%
Parker's Columbia and Victoria..33⅓%
Parker's Box and Side.....50&10%
Swift, Lane Bros. Co.....30%

Motors, Water—

Divine's Red Devil.....30%

$2.50	3.50	10.00	15.00	33⅓%
No. 1.	2	3	4	

Lippincott's:

No.	1	2	3	4	
	$2.50	3.50	10.00	15.00	33⅓%

Pike Mfg. Co., Tool and Knife Grinding.....33⅓%

Mowers, Lawn—

NOTE—Net prices are generally quoted
Cheapest, 10-in., $2.00; advance 10¢ for each size.
Cheap, 10-in., $2.25; advance 15@20¢ for each size.
Better Grade, 10-in., $3.00; advance 25¢ for each size.

	12	*14*	*16*	*18 in.*
High Grade	*$4.50*	*4.75*	*5.00*	*5.25*

Continental.....60
Great American.....70
Great American Ball B'r'g, new list.70
Quaker City.....70
Pennsylvania.....60
Pennsylvania, Jr., Ball Bearing, 50&10&5
Pennsylvania Golf.....50
Pennsylvania Horse.....33⅓&5
Pennsylvania Pony.....40&5
Granite State:
Style A, Low Wheel.....70
Style B, Low Wheel.....70
Style C, High Wheel, spcl. list, 70&10%
Style D, High Wheel, spcl. list..70%
Philadelphia:
Styles M., S., C., K., T....70&10&5
Style A, all Steel.....60&10&5
Style E, High Wheel.....70&10&5
Drexel and Gold Coin, special list.40%
Horse.....40&5
Pony.....40&5
36-in. Horse.....30&10
Eagle Horse.....30&5
I. X. L. Horse.....50%

Nails—

Wire Nails and Brads, Miscellaneous.....85&5@85&10%
Cut and Wire, See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	.. ₰ lb. net, 12¢
Coleman	13	12	12	11	11	net ₰ lb
New Haven..	23	21	20	19	18	.. ₰ lb. net, 12¢
Livingston	19	18	17	16	16	..... 10%
Western						₰ lb 8½¢

Jobbers' Special Brands, per lb. 9¢

Picture—

	1½	2	2¼	3 in.
Brass Hd, gro.	*.45*	*.55*	*.60*	*.70*
Por. Head, gro.	*1.10*	*1.10*	*1.10*	

Upholsters—

Brass.....30%
Plated.....30&10%

Nippers—

See *Pliers and Nippers.*

Nipples—

Standard Nipple Co.:
Wrought Pipe Nipples.....80%

Nuts— *Blank or Tapped.*

Cold Punched: Off list.
Square.....5.40@5.50¢
Hexagon.....6.00@6.10¢
Square, C., T. & R..5.80@5.90¢
Hexagon, C., T. & R.6.60@6.70¢
Hot Pressed:
Square.....5.80¢
Hexagon.....6.30¢

Oakum—

Best.....lb. 6½¢
U. S. Navy.....lb. 6 ¢
Navy.....lb. 5 ¢
Plumbers' Spun Oakum..2¾@3 ¢

Oil—

Pike Mfg. Co., Stonoil.....40%

Oil Tanks—See *Tanks, Oil.*

Oilers—

Steel, Copper Plated.....75%
Chase or Paragon:
Brass and Copper.....50&10%
Zinc.....65&10%
Railroad.....60&10&10%
Malleable, Hammers' Improved, Nos. 11, 12 and 13, 20%; Old Pattern, Nos. 1, 2, 3, 50%.
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%
Maple City Mfg. Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers—Packing Box—

Herculever, ₰ doz., $24.....30%

Can Openers—

Per doz.
Sprague, Iron Handle.....80@35¢
Sprague, Wood Handle.....40¢
Sardine Scissors.....$1.75@3.00
Can and Bottle Openers, ₰ doz., net: Yankee, $0.75@$0.85; Little Gem, $0.50@$0.65; Nifty.....$0.75

Egg—

Hartigan Nickel Plate, ₰ doz., $2.00; Silver Plate, $4.00.

Packing—

Asbestos Packing. Wick and Rope, any quantity.....18@20¢

Rubber—

(Fair quality goods.)
Sheet, C. I.....11@12¢
Sheet, C. O. S.....11@12¢
Sheet, C. B. S.....12@13¢
Sheet, Pure Gum.....40@45¢
Sheet, Red.....40@50¢
Jenkins' '96, ₰ lb, 80¢.....25%

Miscellaneous—

American Packing....lb. 7@10 ¢
Cotton Packing.....lb. 16@25 ¢
Italian Packing.....lb. 9@10¢
Jute.....lb. 4@4¼¢
Russia Packing.....lb. 9@10¢

Pails, Water, Well, &c.—

See *Buckets.*

Paint—

Dixon's Silica-Graphite, in 1 gal. pails and 5 gal. kegs, 25%; packages of larger size.....20%

Pans— Dripping—

Standard List..70&10@70&10&5%
Edwards, Royal Blue.....75%

Fry—

Common Lipped:

Nos.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.75*	*0.85*	*0.95*	*1.15*	*1.30*

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz.	*$1.75*	*2.25*	*2.80*	*3.15*

Paper—Building Paper

Asbestos: lb.
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft..2½¢
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lb., per 100 sq. ft.....3½¢
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.....3¢
Per roll.
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll, 48@58¢
Medium weight, 30 lbs. to roll, 56@70¢
Heavy weight, 40 lbs. to roll, 75@78¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton.....$54.50
Red Rope Roofing, 250 sq. ft. per roll.....$1.75

Tarred Paper—

1 ply (roll 400 sq. ft.), ton, $34.00@$38.00
2 ply, roll 108 sq. ft.....65¢
3 ply, roll 108 sq. ft.....88¢
Slater's Felt (roll 500 sq. ft.).80¢

Sand Paper and Cloth—

Flint and Emery.....50&10%
Garnet Paper and Cloth.....25%

Parers—Apple—

Goodell Co.:
Family Bay State.....₰ doz. $15.00
Improved Bay State.....₰ doz. $36.00
New Lightning.....₰ doz. $7.00
Turn Table '98.....₰ doz. $6.00
White Mountain.....₰ doz. $5.00
Bonanza Improved.....each $7.50
Dandy.....each $10.00
Eureka Improved.....each $20.00
New Century.....each $20.00
Ranger.....each $30.00
Livingston Nail Co.:
Daisy.....₰ doz. $4.00
Little Star.....₰ doz. $5.00
Rocking Table.....₰ doz. $6.20
Reading Hardware Co.:
Advance.....₰ doz. $4.00
Baldwin.....₰ doz. $4.00
Reading 72.....₰ doz. $3.25
Reading 78.....₰ doz. $6.25

Orange—

Goodell Co., Success.....each $20.00

Potato—

Saratoga.....₰ doz. $7.00
White Mountain.....₰ doz. $6.00

Picks and Mattocks—
(*List Jan., 1908.*)

List .....70&10@70&10&10%
Cronk's Handled Garden Mattock, ℔ doz., $3.00.....33⅓%

Pinking Irons—
See *Irons, Pinking.*

Pins, Escutcheon—
Brass .....50@50&10%
Iron, list Nov. 11, '85..60@60&10%

Pipe, Cast Iron Soil—
Standard, 2-6 in.....70@—%
Extra Heavy, 2-6 in..75&10@—%
Fittings, Standard and Heavy, 80&10@80&10&10%

Pipe, Merchant—
Consumers, Carloads,

	Steel.		*Iron.*	
	Blk.	*Galv.*	*Blk.*	*Galv.*
	%	%	%	%
⅛ and ¼ in	66	50	64	..
⅜ in	68	54	66	52
½ in	70	58	68	56
¾ to 6 in	74	64	72	62
7 to 12 in	71	56	69	54

Pipe, Vitrified Sewer—
Carload lots.
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:
First-class 87%
Second-class 90%

Pipe, Stove—

	Per 100 joints.	
Edwards' Nested:	C. L.	L. C. L.
5 in., Standard Blue	$6.25	$7.25
6 in., Standard Blue	6.75	7.75
7 in., Standard Blue	7.75	8.75
5 in., Royal Blue	7.00	8.00
6 in., Royal Blue	7.50	8.50
7 in., Royal Blue	8.50	9.50
Wheeling Corrugating Co.'s Nested:		
5 in., Uniform Color	$5.90	$6.90
6 in., Uniform Color	6.40	7.40
7 in., Uniform Color	7.40	8.40

Planes and Plane Irons—
Wood Planes—
Bench, first qual.....30@30&10%
Bench, second qual...40@40&10%
Molding .....25@25&10%
Chapin-Stephens Co.:
Bench, First Quality.....30%
Bench, Second Quality.....40%
Molding and Miscellaneous.....25%
Toy and German.....30%
Union 60%

Iron Planes -
Chaplin's Iron Planes.....60%
Union 60%

Plane Irons—
Wood Bench Plane Irons, list Dec. 12, '06.....25%
Buck Bros.....30%
Chapin-Stephens Co.....25%
Union 50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—
Kohler's Eclipse.....℔ doz. $7.50

Plates—
Felloe .....*lb*.3¾@4¢
Avery Stamping Co.:
Standard Wrot, Steel Felloe Plates in 100 lb kegs, per 100 lb, ¾-in. to 1⅛-in., $4.00 net; 1¼-in. to 2-in., inclusive, $3.75 net.

Steel Pipe Hook—
Never-Break .....75&10%

Pliers and Nippers -
Button Pliers....75&5@75&10&5%
Gas Burners, per doz., 5 in., $1.25 @$1.30; 6 in., $1.45 $1.50.

Gas Pipe..	*7*	*8*	*10*	*12-in.*
	$2.00	*$2.25*	*$2.75*	*$3.50*

Acme Nippers.....50&5%
Cronk & Carrier Mfg. Co.:
American Button.....80%
Improved Button.....75&10%
Cronk's 60%
No. 80 Linemen's.....50%
Stub's Pattern.....45%
Combination and others.....33⅓%
Heller's Farriers' Nippers, Pincers and Tools.....40&5@40&10&5%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.: Pliers and Nippers, all kinds....40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels.....30@30&10%
Chaplin's Imp. Brass Cor..40@40&10%
Pocket Levels.....30@30&10%
Extension Sights.....30@30&10%
Machinists' Levels.....40@40&10%
Disston's Plumbs and Levels....60&10%
Disston's Pocket Levels.....60&10%
Stanley's Dulex.....35%
Woods' Extension.....33⅓%

Points, Glaziers'—
Bulk and 1-lb. papers....*lb.* 9 ¢
¼-lb. papers.....*lb.* 9½¢
¼-lb. papers.....*lb.* 1[illegible] ¢

Police Goods—
Manufacturers' Lists..25@25&5%
Tower's 25%

Polish—Metal, Etc—
Ladd Co.:
Putzade Liquid, ℔ gro., ¼ pts., $12.00; 1 pts., $20.00; 1 qts., $40.00; ℔ doz., ½ gals. $6.35; 1 gals., $12.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $9.00..40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz, 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz., $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75.

Stove—
Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon, ℔ gr. $5.75.....10%
Dixon's Plumbago.....℔ lb 8¢
Fireside .....℔ gr. $2.50
Gem, ℔ gr. $1.50.....10%
Japanese .....℔ gr. $3.50
Jet Black.....℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50

Window Polish—
Benj. P. Forbes:
Glasbright, No. 2, gal pails, ℔ doz., $24.00; each, $2.50; 1 lb cans, each .....75¢
Glasbright Powder, bbls., ℔ lb..20¢

Poppers, Corn—
1 qt. Square..doz.$0.80; gro.$8.75
1 qt. Round..doz.$0.90; gro.$10.00
1½ qt. Square.doz.$1.20; gro.$12.00
2 qt. Square..doz.$1.50; gro.$15.00

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Posts, Steel—
Steel Fence Posts, each, 6 ft., 46¢; 6½ ft., 48¢; 7 ft., 50¢.
Steel Hitching Posts.....each $1.30

Potato Parers—
See *Parers, Potato.*

Pots, Glue—
Enameled 40%
Tinned .....30&10%

Powder—
In Canisters:
Duck, 1 lb.....*each* 45¢
Fine Sporting, 1 lb....*each* 75¢
Rifle, ½-lb.....*each* 15¢
Rifle, 1 lb.....*each* 25¢
In Kegs:
12½-lb. kegs.....$3.50
25-lb. kegs.....$4.50
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Presses—
Fruit, Wine and Jelly—
Enterprise Mfg. Co.....20@25%
Seal Presses—
Morrill's No. 1, ℔ doz., $20.00.....50%

Pruning Hooks and Shears
See *Shears.*

Pullers, Nail, Etc.—
Cyclops 50%
Miller's Falls, No, 3, ℔ doz., $12.00..33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 .....50%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
The Scranton Co. Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00
Smith & Hemenway Co.:
Diamond B.....70%
Giant 50%
Staple Pullers, Utica and Davison 60%
Taylor Mfg. Co., Sampson Tack, ℔ doz.....$0.40

Pulleys, Single Wheel—

Inch	*1½*	*1¾*	*2*	*3*
Awning or Tackle, doz.	*$0.50*	*.55*	*.60*	*1.05*
Hay Fork, Swivel or Solid Eye, doz., ¼ in., $1.25; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz	*$0.65*	*.85*	*1.20*	
Inch	1¼	1½	1¾	2
Screw, doz	*$0.16*	*.19*	*.23*	*.30*
Inch	1¾	2	2¼	2½
Side, doz	*$0.25*	*.40*	*.55*	*.60*
Inch	1½	1¾	2	2½

Sash Pulleys—
Common Frame; Square or Round End, per doz., 1¾ and 2 in.....17@20¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in....20@21¢
Acme, No. 35..1¾ in., 19¢; 2 in., 20½¢
American Pulley Co.:
Wrought Steel American Plain Axle .....50&10%
Wrought Steel, Eagle.....17@20¢
Top Notch, Electrically Welded, Nos. 3 and 4.....19¢
Common Sense.....℔ doz. 20¢
Fox-All-Steel, Nos, 3 and 7, 2 in.... ℔ doz. 50¢
Grand Rapids All Steel Noiseless..50%
Niagara, No. 25, 1⅜ in., 19¢; 2 in., 20½¢
No. 26, Trov..1⅜ in., 14½¢; 2 in., 16½¢
Star, No. 28...1⅜ in., 19¢; 2 in., 20½¢
Tackle Blocks—See Blocks.

Pumps—
Cistern 60%
Pitcher Spout.....75&5@75&10%
Wood Pumps, Tubing, &c....50%
Barnes Dbl. Acting (low list).....45%
Barnes Pitcher Spout.....80%
Contractors' Rubber Diaphragm, No. 2, B. & L. Block Co.....$16.00
Daisy Spray Pump.....℔ doz. $6.50
Flint & Walling's Fast Mail Hand (low list) .....50&5%
Flint & Walling's Fast Mail (low list) .....50&5%
Flint & Walling's Tight Top Pitcher 80%
National Specialty Mfg. Co., Measuring, Nos. 2, $6.00; 3, $5.50.....30%
Myers' Pumps (low list).....
Myers' Power Pumps.....
Myers' Spray Pumps.....
} 50%

Pump Leathers—
Plunger and Valve Leathers—Per gro.:

No.....	*1*	*2*	*3*	*4*
	$5.00	*6.00*	*7.00*	*8.00*

Cup Leathers—Per 100:

Inch....	*2½*	*3*	*3½*	*4*
	$5.00	*7.00*	*9.00*	*12.00*

} 30%

Punches—
Saddlers' or Drive, good, doz.50@75¢
Spring, single tube, good quality *$1.75*
Revolving (4 tubes)....*doz.$3.50*
Bemis & Call Co.'s Cast St'l Drive.50%
Morrill's Nos, 1AA, 1A, 1B, 1C, 1D, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Tinners' Hollow, P., S. & W. Co..40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44.....40&10%

Rail—Barn Door, &c.—
Sliding Door, Painted Iron, 2½@2¾¢
Sliding Door, Wrought Brass, 1⅛ in., lb., 36¢.....30%
Cronk's:
Double Braced Steel Rail..℔ ft. 2¾¢
O. N. T. Rail.....2¾¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.25; 1¼ x 3-16 in., $3.75.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.50; 1¼ x 3-16 in., $4.00.
Lane's:
Hinged Track, ℔ 100 ft.....$3.45
O. N. T., ℔ 100 ft., 1 in., $3.12½; 1¼ in., $3.45; 1½ in., $4.00.
Standard, 1¼ in.....℔ 100 ft. $4.00
Lawrence Bros.:
1 x 3-16 in., ℔ 100 ft., $7.50; 1¼ x 3-16 in., $8.75.....55&7½%
McKinney's:
Hinged Hanger Track, ℔ ft., 11¢. 60&5%
1 x 3-16 Track.....55&7½%
Myers' Stayon Track.....60&5%
Richards Mfg. Co.:
Common, 1 x 3-16 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail..60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 50.....60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.

Rakes—
NOTE.—Many goods are sold at net prices.
Fort Madison Red Head Lawn....$3.25
Fort Madison Blue Head Lawn....$2.75
Cronk's:
Steel Garden: Champion, ℔ doz., 12-tooth, $3.75; 14-tooth, $4.00; 16-tooth, $4.25; Ideal, ℔ doz., 12-tooth, $3.00; 14-tooth, $3.30; 16-tooth, $3.60.
Victor, 12-tooth, $2.25; 14-tooth, $2.50; 16-tooth, $2.75.
Queen City Lawn, ℔ doz., 20 teeth, $2.85; 24, $3.00.....net
Anticlog Lawn, ℔ doz.....$4.00
Malleable Garden.....70&10%
Ideal Steel Garden, ℔ doz., 12 teeth, $15.00; 14, $16.00; 16, $18.00.....80%
Kohler's:
Jumbo Lawn, 36-tooth....℔ doz. $5.00
Lawn Queen, 20-tooth....℔ doz. $2.85
Lawn Queen, 24-tooth....℔ doz. $3.00
Paragon, 20-tooth.....℔ doz. $2.65
Paragon, 24-tooth.....℔ doz. $2.75
Steel Garden, 14-tooth, ℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00

Rasps, Horse—
Disston's 75%
Heller Bros.,.....70&5@70&10&5%
Liveright Bros.' Gold Medal.70&10@75%
McCaffrey's American Standard..... 60&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—
John Engstrom Swedish.....65%
Sharp Shaver.....60%
Fox Razors, ℔ doz., No. 42, $24.00; No. 44, $20.00; No. 82, Platina, $36.00.
} Dis. 50%

Reels, Fishing—
Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo.....20%
Aluminum, German Silv., Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
6 N, 6 PN, 24 N, 26 PN.....20%
2904 P., 33¼%; 2904 PN., 33⅓%; 02924 N., 33⅓%; 02084 N., 33⅓%; 002904 PN., 33⅓%; 802 N., 33⅓%
986 PN, 2904 N, 974 PN.....25%
5009 PN 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*
Japanned, Electroplated and Bronzed 70%
White Porcelain Enamel..50&10%
Solid Brass or Bronze Metal.40%

Revolvers—
Single Action.....*$5¢@$1.00*
Double Action, except 44 cal.$2.00
Double Action, 44 caliber...*$2.00*
Automatic *$4.00*
Hammerless *$4.50*

Riddles, Hardware Grade
16 in.....*per doz.$2.50@$2.75*
17 in.....*per doz.$2.75@$3.00*
18 in.....*per doz.$3.00@$3.25*

Rings and Ringers—
Bull Rings—

	2	*2½*	*3 inch.*
Steel	*$0.70*	*0.75*	*0.80 doz.*
Copper	*$1.10*	*1.25*	*1.65 doz.*

Hog Rings and Ringers—
Hill's Rings, gro. boxes.$4.50@$4.50
Hill's Ringers, Gray Iron, doz., 60@75¢
Hill's Ringers, Malleable Iron, doz.80@95¢
Blair's Rings..*per gro.$5.00@$5.50*
Blair's Ringers...*per doz.75@90¢*

Rivets and Burrs—
Copper .....50@50&10%
Carriage, Coopers', Tinners', &c.: Black .....70&10%
Metallic Tinned.....70%

Bifurcated and Tubular—
Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 50 count, 23@25¢; Tin boxes, 100 count, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢; 100 count, 51@58¢.

Rollers—
Cronk's Stay, No, 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56, $0.75; No. 60.....$0.75
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No, 53.75¢
O. K. Adj. and Reversible No, 58.50¢
Lag Screw, Nos. 55 and 57.....50%
Underwriters', Nos, 59, 60.....50%
Favorite, No. 54.....60%

Rope—
Manila, 7-16 in. diam. and larger: Pure .....*lb*.9½¢
Sisal, 7-16 in. diam. and larger: Pure .....*lb*.7¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse: Pure .....*lb*.7½@7¾¢
Sisal, Tarred, Medium Lath Yarn: Pure .....*lb*.6½@6¾¢
Cotton Rope:
Best, ¼-in. and larger...18@20¢
Medium, ¼-in. and larger.16@17¢
Common, ¼-in. and larger..10¢
In coils, ½¢ advance.
Jute Rope:
Thread, No. 1, ¼-in. and up, lb. .....6¼¢
Thread, No. 2, ¼-in. and up, lb. .....5¾¢

Wire Rope—
Galvanized .....$7½&2½%
Plain .....45&2½%

Ropes, Hammock—
Covert Mfg. Co.:
Jute, 35%; Sisal.....20%

Rules
Boxwood .....60@60&10%
Ivory .....35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood 60%
Flexifold 40%
Ivory .....25@25&10%
Miscellaneous .....50@50&10%
Stephens' Combination.....55%
Stationers' .....50@50&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Upson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—

Atkins':
Circular 45%
Band ..... 50@50&10%
Butcher Saws 50%
Cross Cuts 35%
One-Man Cross Cut 40%
Narrow Cross Cut 50%
Hand, Rip and Panel ..... 35&5%
Miter Box and Compass 40%
Mulay, Mill and Drag 45%
Wood Saws ..... 40&10%
Chapin-Stephens Co.:
Turning Saws and Frames ..... 30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws ..... 30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth 50%
Band, 2 to 18 in. wide 60%
Band, ¼ to 1¾ 60%
Crosscuts 45%
Narrow Crosscuts 50%
Mulay, Mill and Drag 50%
Framed Woodsaws 25%
Woodsaw Blades 25%
Woodsaw Rods, Tinned 15%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8 ..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination 30%
Compass, Key Hole, &c 25%
Butcher Saws and Blades 30%
C. E. Jennings & Co.'s:
Back Saws 16⅔%
Butcher Saws ..... 25&7½%
Compass and Key Hole Saws, 33⅓&7½%
Framed Wood Saws ..... 25&7½%
Hand Saws 12½%
Wood Saw Blades ..... 33⅓&7½%
Millers Falls:
Butcher Saws ..... 15&10%
Star Saw Blades ..... 15&10%
Massachusetts Saw Works:
Victor Kitchen Saws ..... 40&10&50%
Butcher Saws Blades ..... 35@40%
Peace & Richardson's Hand Saws 30%
Simonds':
Circular Saws 45%
Crescent Ground Cross Cut Saws 30%
One-Man Cross Cuts ..... 40&10%
Gang Mill, Mulay and Drag Saws 45%
Band Saws 50%
Back Saws ..... 25@25&7½%
Butcher Saws ..... 35@35&7½%
Hand Saws ..... 25@25&7½%
Hand Saws, Bay State Brand 45%
Compass, Key Hole, &c ..... 25@25&7½%
Wood Saws ..... 40&7½%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50%

Hack Saw Blades and Frames—

Atkins' Hack Saw Blades A A A 25%
Disston's:
Concave Blades 25%
Keystone Blades 35%
Hack Saw Frames 30%
Simonds, 25%; The Best, 35%; Culley 35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180 ..... 40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades ..... 40&10%
Griffin's Hack Saw Frames ..... 35&5&10%
Griffin's Hack Saw Blades ..... 35&5&10%
Star Hack Saws and Blades ..... 15&10%
Sterling Hack Saw Blades ..... 30&10&5%
Sterling Hack Saw Frames ..... 30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00 ..... 10%
Victor Hack Saw Blades 20%
Victor Hack Saw Frames 40%
Whitaker Mfg. Co.:
National Hand Blades, Hand Frames, Power Blades 40%

Scroll—

Barnes, No. 7, $15 ..... 25%
Barnes' Scroll Saw Blades 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20 ..... 20%
Lester, complete, $10.00 ..... 15&10%
Rogers, complete, $3.50 and $4.00 ..... 15&10%

Scales—

Union Platform, Plain ..... $2.10@2.20
Union Platform, Stpd ..... $2.20@2.30
Chatillon's:
Eureka 25%
Favorite 40%
Grocers' Trip Scales 50%
The Standard Portables 40%
The Standard R. R. and Wagon ..... 50&10%

Scrapers—

Box, 1 Handle ..... doz. $1.85@2.10
Box, 2 Handle ..... doz. $2.35@2.50
Ship ... Light, $2.00; Heavy, $3.50
Chapin-Stephens Co., Box ..... 30@30&10%
Richards Mfg. Co., Foot 60%

Screws—Bench and Hand

Bench, Iron, doz., 1 in., $2.50@2.75; 1¼, $4.00@3.25; 1¼ $3.50@3.75
Bench, Wood ..... 20@20&10%
Hand, Wood ... 70&10@70&10&10%
Chapin-Stephens Co., Hand ..... 70@70&10&2½%

Coach, Lag and Hand Rail—

Lag, Cone Point ... 80&5@80&10%
Coach, Gimlet Point .. 80@80&5%
Hand Rail ..... 70&10@75%

Jack Screws—

Standard List ..... 70&10@75%
Millers Falls ..... 50&10&10%
Swett Iron Works ..... 70@75%

Machine—

Cut Tread, Iron, Brass or Bronze:
Flat Head or Round Head, 50@50&10%
Fillister Head ..... 40@40&10%
Rolled Thread, F. H. or R. H., Iron ..... 75&10%
F. H. or R. H., Brass, Nos. 8 to 14 ..... 65&10%

Set and Cap—

Set (Iron) ..... 75&10&7½%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap ..... 70&10&7½%
Hex. Hd. Cap ..... 70&10&7½%
Rd. Hd. Cap ..... 50&7½%
Fillister Hd. Cap ..... 60&7½%

Wood—

List July 23, 1903.
Flat Head, Iron ..... 87½&5@.. %
Round Head, Iron ..... 85&5@.. %
Flat Head, Brass ..... 80&5@.. %
Round Head, Brass .. 77½&5@.. %
Flat Head, Bronze ..... 75&5@.. %
Round Head, Bronze .. 72½&5@.. %
Drive Screws ..... 87½&5@.. %

Scroll Saws—

See *Saws, Scroll.*

Scythes—

Per doz.
Grass, No. 1, Plain $7.00
Clipper, Bronzed Webb $7.25
No. 3 Clipper, Pol'd Webb ... $7.50
No. 6 Clipper and Solid Steel. $7.75
Bush, Weed and Bramble, Nos. 11, 12 and 13 ..... $7.25
Grain, No. 1 ..... $9.00@9.50
Bronzed Webb, No. 1 ... $9.25@9.75
Nos. 3 and 4 Clipper, Grain, $9.50@10.00
Solid Steel, No. 6 .... $10.00@10.50

Seeders, Raisin—

Enterprise ..... 25@30%

Sets— Awl and Tool—

Fray's Tool Handles, Nos. 1, $12; 2, $16; 3, $12 ..... 50%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18 .. 20&10%

Garden Tool Sets—

Ft. Madison Three Plows, Hoe, Rake and Shovel ..... ℔ doz. sets $9.00

Sets, Nail—

Octagon ..... gro. $3.50@3.75
Buck Bros 27½%
Mayhew's ..... ℔ gro. $9.00
Snell's Corrugated, Cup Pt ..... 40&10%
Snell's Knurled, Cup Pt ..... 40&10%
Victor Knurled, Cup Pt .... ℔ gro. $7.50

Rivet—

Regular list ..... 75@75&10%

Saw—

Atkin's:
Criterion 40%
Adjustable 40%
Disston's Star, Monarch and Triumph 30%
Morrill's No. 1 ..... $15.00
Nos. 3 and 4, Cross Cut $20.60
No. 5, Mill $30.00
Nos. 10, 11, 95 ..... $15.60
No. 1 Old Style $10.00
Special $16.25
Giant Royal Cross Cut ..... ℔ doz. $7.50
Royal, Hand ..... ℔ doz. $4.50
Taintor Positive ..... ℔ doz. $6.75

Shaving—

Fox Shaving Sets, No. 30 ..... ℔ doz., net, $24.00
Smith & Hemenway Co.'s 75%

Sharpeners, Knife—

Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz $1.50
Mounted Kitchen Sand Stone, ℔ doz $1.50
Natural Grit Carving Knife Hones, ℔ doz $3.00
Quick Cut Emery Carving Knife Hones, ℔ doz $1.50
Quick Edge Pocket Knife Hones, ℔ doz $2.50
} 50%

Skate—

Smith & Hemenway Co., Eureka .. 50%

Shaves, Spoke—

Iron ..... doz. $1.25
Wood ..... doz. $2.00
Bailey's (Stanley R. & L. Co.) 45%
Chapin-Stephens Co ..... 30@30&10%
Goodell's, ℔ doz. $9.00 ..... 15&10%

Shears—

Cast Iron..	*7*	*8*	*9 in.*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality Jap .... 70@70&10%
Best quality Nickel .. 60@60&10%
Tailors' Shears ..... 40@40&10%
Acme Cast Shears ..... 40@40&5%
Heinisch's Tailor's Shears 10%
National Cutlery Co.'s Nickel Plated, 60&10%; Japan Handles ..... 70&10%
Wilkinson Shear & Cutlery Co.:
Sheep, 1900 list ..... 30&10&5%
Grass ..... 50&10%
Horse or Mule ..... 50&10%
J. Wiss & Sons Co.:
Best Quality Jap'd ..... 60&10%
Best Quality Nickeled ..... 50&10%
Tailors' 25%

Tinners' Snips—

Steel Blades ..... 20@5@20&10%
Steel Laid Blades ..... 40&10@30%
Acme Cast Snips ..... 40@45&5%
Forged Handles, Steel Blades, Berlin 50%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s 6½ to 10 in ..... 33⅓&7½%
National Cutlery Co.'s Forged Steel. 50%
Niagara Snips 40%
P. S. & W. Forged Handles, 25%; W. R. W 50%
J. Wiss & Sons Co.:
Wiss Forged Steel 25%

Pruning Shears—

Cronk's Hand Shears 33⅓%
Cronk's Wood Handle Shears 33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz, $18.00 ..... 25%
Disston's Pruning Hook only, ℔ doz., $12.00 ..... 25%
J. T. Henry Mfg. Co.:
Pruning Shears, all grades 40%
P., S. & W. Co ..... 40&10%
Columbian Cutlery Co.:
Hedge, Wilcut Brand ..... 60&10%
Lawn and Border, Wilcut Brand, 60&10%

Sheaves—Sliding Door—

Reading 40%
R. & E. list 15%

Sliding Shutter—

Reading list 40%
R. & E. list 15%

Shells—Shells, Empty—

Brass Shells, Empty:
Climax, 10 and 12 gauge ..... 60&5%
Club, Rival, 65&5%; First Quality, 60&5%

Paper Shells, Empty:
New Rapid, 10, 12, 16 and 20 gauge, 25&10%
Climax, 10 and 12 gauge; Acme and Magic, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade ..... 25&5%
Union, League, 10 and 12 gauge, Rival Grade 25%
New Climax, Defiance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge 20%
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade .. 20%

Shells, Loaded—

Loaded with Black Powder .. 40%
Loaded with Smokeless Powder, medium grade ..... 40&5%
Loaded with Smokeless Powder, high grade ..... 40&10&10%
Union Metallic Cartridge Co.:
New Club, Black Powders 40%
Nitro Club, Smokeless Powders. 40&5%
Arrow, Smokeless Powders. 40&10&10%
Winchester:
Smokeless Repeater Grade ..... 40&5%
Smokeless Leader Grade ... 40&10&10%
Black Powder 40%

Shingles, Metal— Per Sq.

Edwards Mfg. Co.:

	Painted.	Galv.
14 x 20	$4.25	$6.00
10 x 14	4.50	6.25
7 x 10	4.75	6.50

Wheeling Corrugating Co.:

Dixie, 14 x 20 in	$4.05	$5.05
Dixie, 10 x 14 in	4.25	5.45
Dixie, 7 x 10 in	5.25	6.70

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:
Iron ..... per keg. $4.10
Steel ..... per keg. $3.85
Burden's, all sizes ..... ℔ keg $3.90

Shot—

25-lb. bag.
Drop, up to B $1.75
Drop, B and larger 2.00
Buck 2.00
Chilled 2.10
Dust 2.30

Shovels and Spades—

Association List, Nov. 15, 1902. 40%
Avery Stamping Co 40%

Snow Shovels—

Long Handle ..... $3.25@$3.50
Wood and Mall, D Handle, $3.75@$4.00

Sieves and Sifters—

Hunter's Imitation, gro $9.50
Hunter's Genuine, per gro .. $12.00

Sifters, Ash—

Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each, $3.25; ℔ doz $39.00

Sieves, Seamless Metallic

	Per dozen.			
Mesh	*1½*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested .... doz. $0.90@0.95
Mesh 20, Nested .... doz. $1.00@1.05
Mesh 24, Nested .... doz. $1.30@1.40

Sinks, Cast Iron—

Painted, Standard list:
12 x 12 to 22 x 36 in 60%
20 x 24 to 24 x 50 in 50%
24 x 60 to 24 x 120 in 30%
Barnes' low list 60%

NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—

Cast Iron ..... 70@75&10%
Steel ..... 40@45%

Slates, School—

Factory Shipments.
"D" Slates ..... 50@50&10%
Eureka, Unexcelled Noiseless .. 60&7 tens.
Victor A, Noiseless .60&4 tens &5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German ..... 40@40&10%
Covert Mfg. Co.:
Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%
High Grade, 40%; Trojan 40%
Jockey 25%

Snaths—

Scythe 60%

Snips, Tinners—See *Shears.*

Spoons and Forks—

Silver Plated—

Good Quality ..... 50&10@60&5%
Cheap ..... 60@60&10%
International Silver Co:
1847 Rogers Bros ..... 40&10%
Rogers & Bro., William Rogers' Eagle Brand ..... 50&10%
Anchor, Rogers Brand 60%
Wm. Rogers & Son ..... 60&10%

Miscellaneous

German Silver ..... 60@60&5%

Tinned Iron—

Teas ..... per gro. 50@55¢
Tables ..... per gro. $0.90@$1.00
Atlas Mfg. Co.:
Tea Spoons, ℔ gro ..... 50¢@55¢
Table Spoons, ℔ gro ..... $0.90@$1.00

Springs— Door—

Bardsley's Spring and Check 40%
Chicago (Coil) ..... 40&10%
Gem (Coil) 20%
Pullman Door and Gate 10%
Reliance (Coil) ..... 40&10%
Star (Coil) 35%
Torrey's Rod, 39 in ..... ℔ doz, $1.00

Carriage, Wagon, &c.—

1¼ in. and Wider: Per 100 lb.
Black ..... $4.75@$5.00
Half Bright ..... $4.75@$5.00
Bright ..... $5.25@$5.50
Painted Seat Springs:
1½ x 2 x 26 .... per pair. 45@47¢
1½ x 3 x 28 .... per pair. 68@71¢

Sprinklers, Lawn—

American Foundry & Mfg. Co.:
Cactus, 65%; Japanese, 70%; National, ℔ doz $12.00
Enterprise ..... 25@30%
Philadelphia No. 1, ℔ doz, $12; No. 2, $15; No. 3, $20 ..... 30%

Squares—

Nickel plated .. } List Jan. 5, 1900.
Steel and Iron . } 80@80&5%
Rosewood Hdl. Try Square and T-Bevels ..... 60&10&10@70%
Iron Hdl. Try Squares and T-Bevels ..... 40&10@40&10&10%
Disston's Try Squares and Bevels, Rosewood Handle, 60 & 10%; Iron Stock and Bevel 15%

Squeezers, Lemon

Wood, Porcelain Lined:
Cheap ..... doz. $1.00
Good Grade ..... doz. $1.25
Tinned Iron ..... doz. $0.75@1.00
Iron, Porcelain Lined ... doz. $1.75
Victor, ℔ gro $9.00

Staples—

Barbed Blind ..... 85&5@85&10%
Electricians' ..... 80&10&10@85%
Fence Staples, Polished, $2.05; Galvanized $2.35
Poultry Netting Staples ..... per lb. 3¼@3½¢

Steels, Butchers'—

Dick's 30%
Foster Bros. 30%

Steelyards— .... 30@30&10%

Stocks and Dies—

Blacksmiths' ..... 50@50&10%
Curtis Rev'ble Ratchet Die Stock .. 25%
Derby Screw Plates 25%
Green River 25%
Lightning Screw Plate 25%
Little Giant 25%
Reece's New Screw Plate 25%

Stoners, Cherry—

Enterprise ..... 25@30%

Stones, Axe—

Pike Mfg. Co., Axe Stones (all kinds) 33⅓%

Glass Cutters' Stones—

Pike Mfg. Co., Glass Cutters' Stones and Supplies 40%

Stones, Oil, &c.—

Pike Mfg. Co., 1907 list: ℔ ₵
Arkansas St, No. 1, 3 to 5½ in. $2.80
Arkansas St, No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1 ..... $4.00
Lily White Washita, 4 to 8 in. 60¢
Rosy Red Washita, 4 to 8 in. 60¢
Washita St., Extra, 4 to 8 in. 50¢
Washita St., No. 1, 4 to 8 in. 40¢
Washita St., No. 2, 4 to 8 in. 25¢
Lily White Slips ..... 90¢
Rosy Red Slips ..... 90¢
Washita Slips, Extra ..... 80¢
Washita Slips, No. 1 ..... 70¢
Washita Slips, No. 2 ..... 40¢
} 33⅓%
India Oil Stones (entire list) .. 33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit 40%
Quickcut Emery and Corundum Axe Stone, Double Grit 33⅓%
Quickcut Emery Rubbing Bricks .. 40%
Hindostan No. 1, R'g'lar. ℔ ₵ 8¢
Hindostan No. 1, Small .. ℔ ₵ 10¢
Turkey Oil Stones, Extra, 5 to 8 in ..... ℔ ₵ 80¢
Queer Creek Stones, 4 to 8 in. 20¢
Queer Creek Slips ..... 40¢
Sand Stone ..... 6¢
} 33⅓%

Scythe Stones—

Pike Mfg. Co., 1907 list:
Black Diamond S. S..℔ gro. $12.00
Lamoille S. S.....℔ gro. $11.00
White Mountain S. S.℔ gro. $9.50
Green Mountain S. S.℔ gro. $7.00
Extra Indian Pond S.S.℔ gro. $8.00
No. 1 Indian Pond S.S.℔ gro. $7.50
No. 2 Indian Pond S.S.℔ gro. $5.00
Leader Red End S. S.℔ gro. $5.00
Quick Cut Emery....℔ gro. $10.00
Pure Corundum.....℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat. $8.80
Emery Scythe Rifles, 3 Coat. $11.00
Emery Scythe Rifles, 4 Coat. $13.20
Balance of 1907 list 33⅓%.
Lectro (Artificial), ℔ gro., $12.00.33⅓%
$12.00 .....33⅓%
Lightning (Artificial), ℔ gro., $18.00 .....33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers.....℔ gro. $9.00

Stops— Bench—

Millers Falls.....15&10%
Morrill's, ℔ doz., No. 1, $10.00....50%
Morrill's, No. 2, $12.50.....50%

Door—

Chapin-Stephens Co.....50@50&10%

Plane—

Chapin-Stevens Co.....20%

Straps— Box—

Acme Embossed, case lots..20&10&10%
Cary's Universal, case lots...20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points..doz.55¢
All Steel Socket...doz.$2.00@2.25
Excelsior Stretcher and Tack Hammer Combined, ℔ doz., $6.00....20%

Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses.....25@25&7½%
National Specialty Co., list Jan. 1, 1902 .....30&5%
P., S. & W. Co.....40&10&5%

Sweepers, Carpet—

Per doz.—
Bissell Carpet Sweeper Co.:
Cyco Bearing Superba, $36.00; Triumph, $33.00; Parlor Queen, $30.00; Elite, $29.00; Boudoir, $27.00; American Queen, $27.00; Ideal, $25.00; Gold Medal, $24.00; Primier, $24.00; Prize, $24.00; Welcome, $24.00; Grand Rapids, Nickel, $24.00; Japan, $22.00; Crystal, $36.00; Grand, $36.00; Parlor Grand, $48.00; Club, $54.00; Hall, $60.00; Standard Nickel, $22.00; Standard Japan, $20.00; Crown Jewel, Nickel, $21.00; Crown Jewel, Japan, $19.00; Junior, Nickel, $22.00; Junior, Japan, $20.00.

NOTE.—Rebates: 50c per dozen on three dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks...90&40%
American Cut Tacks.....90&40%
Swedes' Cut Tacks.....90&40%
Swedes' Upholsterers'....90&50%
Gimp Tacks.....90&50%
Lace Tacks.....90&50%
Trimmers' Tacks.....90&40%
Looking Glass Tacks.....65%
Bill Posters' and Railroad Tacks, 90&50&10%
Hungarian Nails.....80&20%
Finishing Nails.....70%
Trunk and Clout Nails...80&10%

NOTE.—The above prices are for Straight Weights.

Miscellaneous—

Double Pointed Tacks, 90&6 tens@—%
Se also Nails, Wire.

Tanks, Oil and Gasoline—

Wilson & Friend Co.:

Gal.	Gasoline	Oil
30	$2.75	$3.00
60	$3.50	$4.00
110	$5.00	$5.75

Tapes, Measuring—

American Asses' Skin....50@—%
Patent Leather.....25@30&5%
Steel .....35⅓&5%
Chesterman's .....25@25&5%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.
Lufkins:
Asses' Skin.....40&10@50%
Metallic .....30@30&5%
Patent Bend, Leather...25&5@25&10%
Pocket .....40@40&5%
Steel .....33⅓@35%
Wiebusch & Hilger:
Chesterman's Metallic, No. 34L, etc. 25%
Chesterman's Steel, No. 1038L, etc. 35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger, per 100 lb. .....$2.55@$2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c. .....30@35%

Ties, Bale—Steel Wire—

Single Loop.....8½&10%
Monitor, Cross Head, &c.70&2½%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White.....20@20&5%

Haying—

Myers' Hay Tools.....50%

Ice Tools—

Gifford-Wood Co.....15%

Miniature—

Smith & Hemenway Co.'s, Davidson, ℔ doz., Nickel Plated, $1.50; Gold Plated.....$2.00

Saw—

Atkins' Cross Cut Saw Tools....35&5%
Simond's Improved.....33⅓%
Simonds' Crescent.....30%

Ship—

L. & I. J. White.....25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz., $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz., $1.25@1.40; gro.$13.00@13.50

Game—

Imitation Oneida.....75@10%
Newhouse .....50&5%
Hawley & Norton.....65&10%
Victor .....75@75&10%
Oneida Community Jump.....70&5%
Stop Thief.....60%
Tree Trap.....60%
Hector .....75@75&10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine), ℔ doz.:

	Crate lots.	Small lots.
No. 1, Rat.....	$11.50	$14.50
No. 3, Rat.....	$5.75	$6.50
No. 3½, Rat.....	$4.70	$5.25
No. 5, Mouse.....	$2.25	$3.00

Animal Trap Co.:
Out o' Sight, Mouse, ℔ doz.....$0.60
Out o' Sight, Rat, ℔ doz..... 1.20
Easy Set, Mouse, ℔ doz..... .35
Easy Set, Rat, ℔ doz..... .85
Out o' Sight Chockers, ℔ doz. holes ..... .12
Out o' Sight, Tin, 5-hole, ℔ doz. traps ..... .75

Trowels—

Disston Brick and Pointing.....25%
Disston Plastering.....20%
Disston "Standard Brand" and Garden Trowels.....30%
Kohler's Steel Garden Trowels, ℔ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break Forged Steel Garden Trowels, in bulk, net ℔ gro. $5.50
In 1 doz. boxes.....℔ gro. $6.00
Woodrough & McParlin, Plastering.25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern.....50&10%
Western Pattern.....60&10%
Handy Trucks.....℔ doz, $16.00
Grocery .....℔ doz $15.00
McKinney Trucks.....each, net $10.00
Model Stove Trucks.....℔ doz $18.50

Tubs, Wash—

M'f'gr's list, price per gross.

No.	0	1	2	3
Galvanized.	*$67*	*$79*	*$89*	*$99*

10&7½&5%

Twine, Miscellaneous—

Flax Twine:
No. 9, ¼ and ½-lb. Balls.21@23¢
No. 12, ¼ and ½-lb. Balls.19@21¢
No. 18, ¼ and ½-lb. Balls.16@18¢
No. 24, ¼ and ½ -lb. Balls. 15½@17½¢
No. 36, ¼ and ½-lb. Balls.15@17¢
Chalk Line, Cotton ½-lb. Balls .....24@29¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz. .....8½@19¢
Cotton Wrapping, 5 Balls to lb., according to quality..13½@19¢
American 2-Ply Hemp, ½ and ½-lb. Balls.....12½@15¢
American 3-Ply Hemp, 1-lb. Balls .....13½@16¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine)..7½@9¢
India 3-Ply Hemp, 1-lb. Balls 7¼@9¢
India 3-Ply Hemp, 1½-lb. Balls, 7@8½¢
2, 3, 4 and 5-Ply Jute, 1½-lb. Balls .....9@1¢
Mason Line, Linen, ½-lb. Bls.17¢
No. 264 Mattress, ¼ and ½ lb. Balls, according to quality. 30@60¢
Wool, 3 to 6 ply....B 6¢; A 7½¢

Vises—

Solid Box.....50&5@50&10&5%

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40%
Standard 40%
Amateur 25%
Columbian Hdw. Co., Slide .....40&5%
.....65%
Fisher & Norris Double Screw, net, each, Nos. 2, $10.50; 3, $16.00; 4, $20.50; 5, $27.00; 6, $32.00.
Fulton Mach. & Vise Co.:
F. & R. Double Swivel Machinists' 40%
Star, Solid Jaw, Machinists'.....40%
Hollands':
Machinists' .....40@40&5%
Keystone .....65&5@70%
Lewis Tool Co.:
Adjustable Jaw.....30%
Monarch, 50%; Solid Jaw.....50%
Massey Vise Co.:
Clincher 40%
Parallel Bar.....15%
Perfect, 15%; Lightning Grip.....15%
Merrill's 25%
Millers Falls Oval Slide Pattern.60&10%
Parker's:
Victor, 20@25%; Regulars....20@25%
Vulcan's .....40@45%
Combination Pipe.....55@60%
Prentiss .....20@25%
Rock Island.....25%
Snediker's X. L.....33⅓%
Stephens' 33⅓%

Saw Filers

Disston's D 3 Clamp and Guide, ℔ doz., $24.00, 30%; Clamps.....30%
Perfection Saw Clamps, ℔ doz....$1.50
Reading 60%

Wood Workers—

Fulton Mach. & Vise Co.:
F. & R. Double Swivel Coachman's 40%
Star Solid Jaw Woodworkers'....60%
Massey Vise Co.:
Lightning Grip, 15%; Perfect....15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Fulton Machine & Vise Co., Combination Pipe.....70%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe.....40%
Parker's Combination Pipe:
87 Series, 60%; 187 Series, 60&5%; No. 870, 40%.
Rock Island Pipe.....25%

Wads— *Price per M.*

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....$1.00
P. E., 9 and 10..... 1.25
P. E., 8..... 1.50
P. E., 7..... 1.50
Ely's B. E., 11 and larger.$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25

Dis. 15%

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled .....45&10%
Ground .....50&5%
Plain or Unground.....60%
Country Hollow Ware, per 100 lbs .....$2.75@$3.00
White Enameled Ware:
Maslin Kettles.....65&10%
Covered Wares:
Tinned and Turned.....35&10%
Enameled .....45&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....33⅓%
El-an-ge .....60&10%
Iron Clad Ware.....70&10%
Lava and Volcanic, Enameled..40&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	*6*	*7*	*8*	*9*
Each	*45¢*	*50¢*	*55¢*	*65¢*

Steel Hollow Ware—

Avery Stamping Co.:
Never-Break Spiders and Griddles .....65&10%
Steel Kettles, Maslins Scotch Bowls, Tin'd.....60%
Steel Stew Pans, Stew Pots, etc., Porcelained 50%
Cleveland Stamping & Tool Co.:
Solid Steel Spiders and Griddles .....65&5%
Solid Steel Kettles.....60&5%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

No.	℔ doz.
800—Brass King, Single Surface, Open Back.....	$2.80
862—White Hen, Spiral Grimp Glass	$3.35
964—Royal Blue Enamel, Single Surface, Ventilated Back.....	$3.35
172—Our Best, Single Zinc, Soap Drainer	$3.35
722—Soap Saver, Single Zinc, Iron Top	$3.35
100—Northern Queen, Single Zinc, Perforated, Open Back.....	$3.00
134—Universal, Single Zinc, Extra Family Size, Ventilated Back....	$2.80
760—Banner Globe, Single Zinc, Ventilated Back.....	$2.25
57—Peerless, Double Zinc, Spring Protector	$3.70
56—Red Cross, Double Zinc, Swing Protector	$3.60
17—North Star, Solid Zinc, Swing Protector	$3.60
797—Jewel, Single Zinc, Pail Size.	$1.25

Washers—Leather, Axle—

Solid .....90@90&10%
Patent .....90@90&5%
Colt: ⅞ 1 1¼ 1¼ inch. 9¢ 10¢ 11¢ 14¢ per box.

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$4.65 3.75 2.45 2.25 2.05
The above prices are based on $6.75 off list.
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Avery Stamping Co.:
Standard, in 200 lb kegs, $6.00 ℔ 100 lb. discount; in 100 lb kegs, add 10¢ net ℔ 100 lb; in 5 or 10 lb boxes, add 50¢ net ℔ 100 lb; in 1 lb boxes, add $1.00 net ℔ 100 lb.

Cast Washers—

Over ½-inch, barrel lots, per lb. 1½@1¾¢

Wedges—

Oil Finish.....lb., 2¼@2¾¢

Weights—Hitching—

Covert Mfg. Co.....30&2%

Sash—

Per net ton, f.o.b. factory:
Eastern District.....$21.00@—
Western and Central Districts .....$20.00@$22.00

Wheels, Corundum and Emery—

Pike Mfg. Co., Corundum, 65%; Emery 75%

Well—

8-in., $2.00; 10-in., $2.30; 12-in., $3.00; 14-in., $4.45.

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....72½&10&7½%
10 to 18.....72½&10&10%
19 to 26.....75&10&12½%
27 to 36.....77½&7½%
Galvanized:
6 to 9.....72½&10%
10 to 14.....72½&10&5%
15 to 16.....72½&10&5%
17 to 18.....72½%
19 to 26.....70&5&2½%
27 to 36.....65&10&10%
Coppered:
6 to 9.....65&10&10%
10 to 14.....70&10&5%
15 to 18.....65&10&10&10%
19 to 26.....70&5&2½%
27 to 36.....72½&10&2½%
Tinned:
6 to 18.....67&10&10%
Brass .....15½¢ lb., base
Copper .....15¼¢ lb., base
Cast Steel Wire.....50%

Spooled Wire—

Annealed and Tinned.75@75&10%
Brass and Copper....70@70&10%
Retailers' Assortments, per box. $1.90@$2.10

Wire Clothes Line, See Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

Steel Wire Goods.....90&40%
Brass Wire Goods.....90&40%
Brass Cup and Shoulder Hooks, 85&10%

Wire Cloth and Netting—

Galvanized Poultry Netting, 80&2½@80&7½%
Painted Screen Cloth, 100 ft., $1.35
Standard Galv. Hardware Grade: 100 ft. rolls, 2½ to 48 in. wide, Per 100 sq. ft.
Nos. 2, 2½ and 3 Mesh....$2.75
Nos. 4 and 5 Mesh.....$3.00
No. 6 Mesh.....$3.25
Nos. 7 and 8 Mesh.....$3.75

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural, 80&10&5@80&10&10%
Alligator or Crocodile..70&10@75%
Baxter Pattern S Wrenches, 70&5@70&10%
Drop Forged S.....45@45&5%
Acme .....60&10%
Alligator Pattern, 70%; Bull Dog..70%
Bemis & Call's:
Adjustable S, 40&5%; Adjustable S Pipe, 40&5%; Briggs Pattern, 40%; Combination Bright, 50%.
Steel Handle Nut.....50&5%
Combination Black.....50&5%
Merrick Pattern.....50&5%
Boardman's 40%
Coes' Genuine Knife Hdl..40&10&5&5%
Coes' Genuine Steel Hdl..40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes' Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer.....40&10%
Eagle 70%
Gem Pocket.....30%
Hercules 70%
W. & B. Machinist:
Case lots.....50&10%
Less than case lots.....50%
W. & B. Railroad Special:
Case lots.....50%
Less than case lots.....40&10&5%
Solid Handles, P., S. & W..50&10%; full cases.....50&10&5%
Standard Nipple Mfg. Co.:
Duplex Chain.....50%
Uwanta Wrench Co.:
Uwanta Special, Iron Handle.... 40&10&5%
Other Wrenches.....50%
Vulcan and Agrippa Chain.....50%
Whitaker Machinists'.....50&10%
Wizard Adjustable Ratchet.....50%

Fruit Jar—

Benj. P. Forbes, Triumph, ℔ gro.. $7.50; per doz.....$0.90

Wrought Goods—

Staples, Hooks, &c., list March 17, '02.....90@—%

Zinc— *(Cask lots at mill.)*

Sheet.....per 100 lb., $7.00